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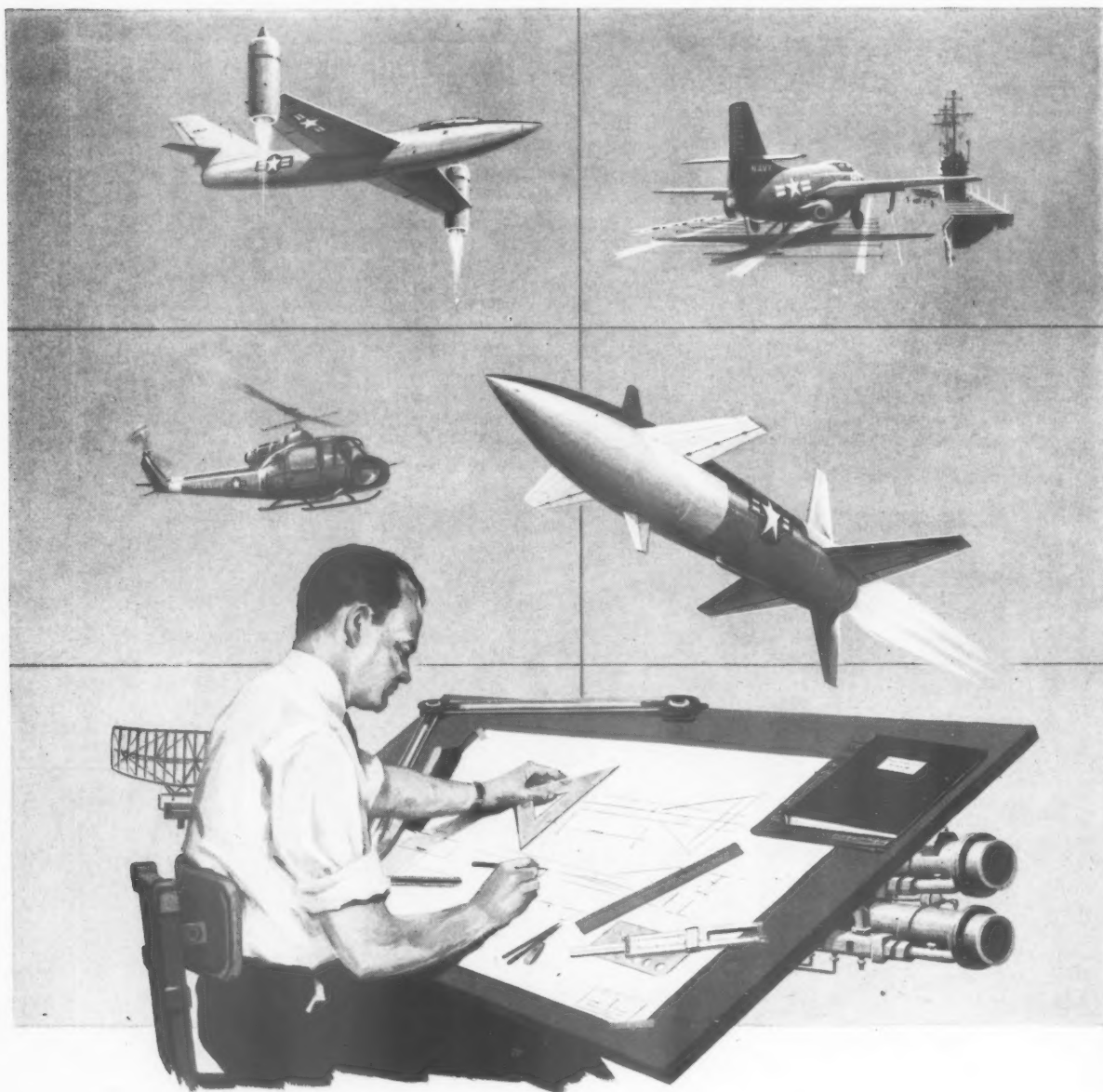
AUGUST, 1957
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ARMED FORCES Management

PUBLISHED FOR THE ARMY, NAVY, AIR FORCE, COAST GUARD AND MARINE CORPS

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To Train Tomorrow's Air Force





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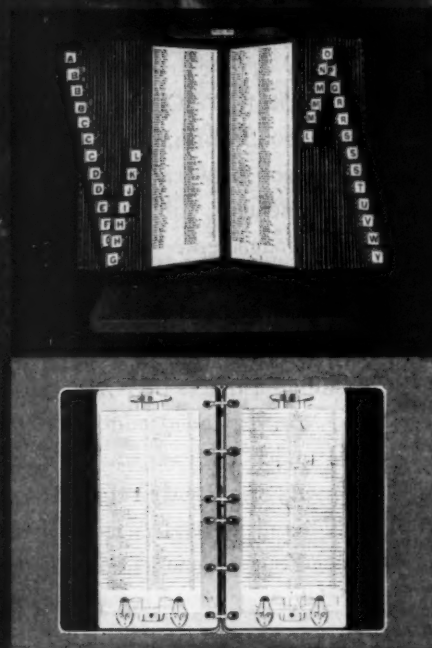
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American Aviation Publications Acquires Armed Forces Management

We are pleased to announce the acquisition of ARMED FORCES MANAGEMENT through purchase of the Professional Services Publishing Company of Rockford, Illinois.

ARMED FORCES MANAGEMENT was started in 1954 by Colonel Roy B. Southworth, with an editorial policy of providing an interchange of information between industry and the armed forces on latest techniques and developments in the management field. This policy will be continued under AAP management.

Colonel Roy B. Southworth, founder and publisher of AFM, joins the AAP organization as executive director of this publication, while C. W. Borklund will remain as managing editor. Both are now located in the Washington offices of AAP at 1001 Vermont Avenue, N. W.

An expanded editorial, circulation, and sales program is planned for AFM under its new management.

As the fourteenth AAP publication ARMED FORCES MANAGEMENT and its readers will benefit from our worldwide staff facilities.

Your comments and suggestions as to how we can make AFM more useful to you would be welcomed and appreciated.

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ON THE COVER

This month's cover is a composite photo depicting the evolution from cadet to pilot, pointing up our featured organization for August, the Air Training Command. Cover's top section is an artist's conception of graduation exercises at the Air Academy while at bottom is one of the latest photos of the F-104A, a jet fighter these cadets will soon be flying.



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ARMED FORCES Management

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AUGUST, 1957

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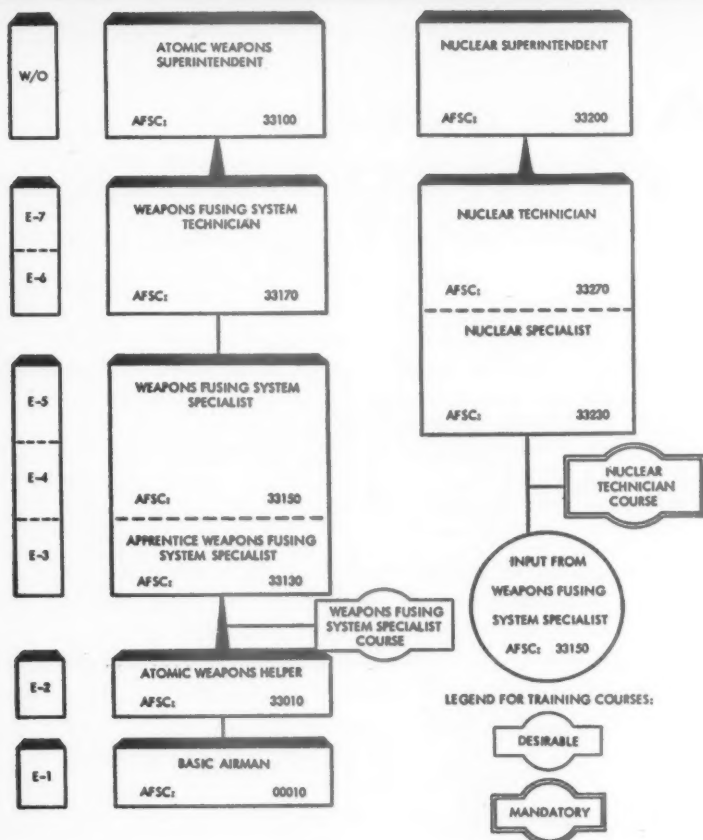
ARMED FORCES MANAGEMENT

Volume 3—No. 11

Roy B. Southworth, Publisher

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AUGUST 1957



A "ladder" in the Airman Career Program (See management policy No. 1 in story)

The Key to

Quality training is the primary objective of management in the Air Training Command. The capability of this Command has a direct bearing on the combat capability of the entire United States Air Force. Here are the seven Management principles ATC uses to train top-grade personnel:

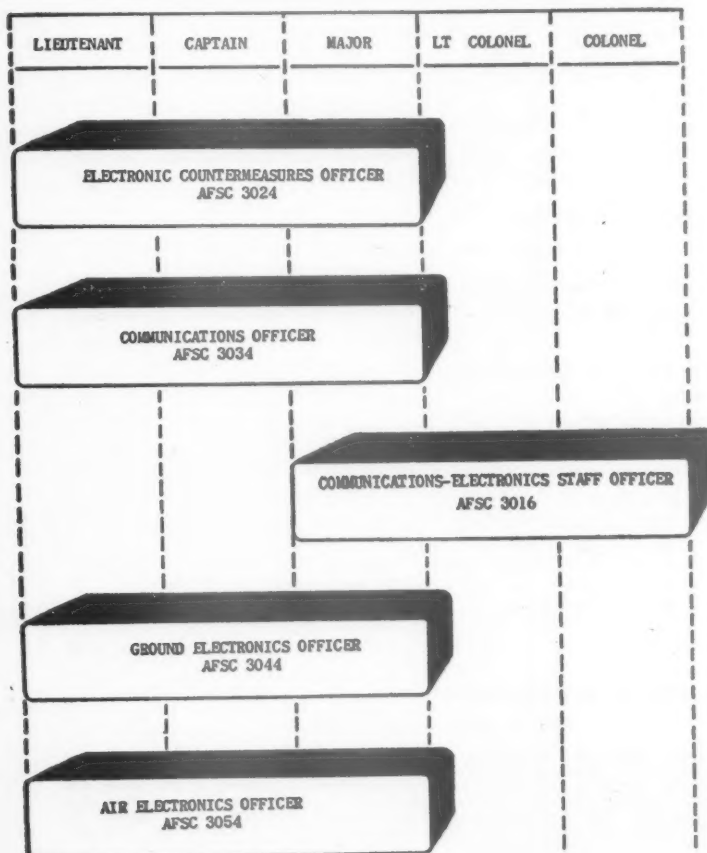
AMERICANS generally think of the Air Training Command as the "Gateway to the Air Force." They further think of this Command as the place where the youth of our nation will receive the basic, technical, flying, and specialized training so essential for an Air Force career. They have faith that the quality of this training will produce a first-rate Air Force. The Air Training Command is keenly aware of this heavy responsibility.

We are fully aware that quality training cannot be accomplished without sound management policies. Therefore, the following management policies prevail throughout our Command.

1 Personnel Classification and Assignment

As the "Gateway to the Air Force," the Air Training Command has the responsibility for insuring that over 100,000 personnel entering the Air Force each year are properly classified and assigned. This is one of the most important phases of our training program and a very definite factor in aiding the young airman or officer in choosing an Air Force career. Therefore, it is our policy, contingent upon the needs of the Air Force, to place each individual in that job for which he has the greatest interest, aptitude, and opportunity for advancement.

Officer Classification System example—preparing for the step up (See management policy No. 1 in story)



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Quality Training at ATC

Furthermore, once the individual is established in a career field, he is to be kept in that field, providing the assignment is mutually satisfactory to him and the Air Force. Thus, the individual's experience and training lead toward a consistent objective commensurate with his interest, ability, and the needs of both himself and the Air Force.

The Airman Career Program is composed of 43 separate Career Fields. For each field, a career "ladder" similar to the one shown at top of facing page for Atomic Weapons has been developed. This system affords the opportunity to study his current status as well as the written requirements for the next higher position. He knows that when he has met these requirements and satisfied other promotion criteria, he is in line for advancement. Positions being with the grade of Airman Basic and run up through the Warrant Officer grades.

The Officer Classification System is composed of a functional grouping of 27 separate Occupational Fields, plus the grouping of Commander and Director Specialties. Each occupational field, similar to the one shown at bottom of the facing page for Communications-Electronics, is composed of a grouping of Air Force specialties that are broadly related in terms of qualifications required for performance, and which, in most instances, provide for progression from Lieutenant to Colonel. Therefore, each officer can study his current position and prepare for the next higher position. He knows that when he has satisfied these and other promotion requirements, he is in line for advancement.

In essence, then, the over-all effect of our policy of classification and assignment on both the Airman Career Program and the Officer Classification System is threefold:

1. Our personnel are placed in a Career Field for which they have proved aptitude.
2. Personnel are trained for a still better job within their Career Field.
3. Opportunities are provided for advancement to jobs of greater responsibility.

2 Instructor Selection and Development

The mammoth task of developing the high level technical skills required for manning and operation of today's Air Force has made Air Training Command one of the world's largest educational institutions. In order to staff this institution, we have developed an instructor staff of over 20,000 key personnel. This staff, composed of highly skilled and specially trained individuals, represents a collection of the world's best technicians.

Air Training Command's success, like that of any educational enterprise, is dependent in large measure upon the quality of its instructor corps. For this reason, maintaining an "Instructor Corps" of the highest caliber is a matter which receives our constant and careful attention.

Our experience during the past several years, and particularly since the Korean conflict, has convinced us that our fundamental concept of developing an "Instructor Corps" in the Air Force is sound. We have found that:

1. The job of instructing involves more than possession of mechanical efficiency or skill as an equipment operator.
2. Instructors must possess skills and personal attributes not ordinarily found in operating technicians.
3. Instructors must have special training in educational philosophy and in the techniques of teaching.

In support of this, we have established a policy of selecting those individuals for instructor duty who have both knowledge of subject and ability to teach. It is significant to note that both of these areas of specialization fall within the realm of personal achievement. Therefore, the axiom "Instructors are made, not born" represents a truism which serves as a guiding principle in all of our instructor training activities.

A good instructor is primarily a product of study and hard work. Consequently, our instructors are continually being trained or retrained to prepare them for increased responsibility and to keep abreast of the latest technological developments pertinent to their Air Force specialty.

Furthermore, every effort is made to provide our instructors with the opportunity to participate in various off-duty in-service training programs. Statistics for FY 1956 show that approximately 42% of our instructor personnel participated in an off-duty training program of some type. Participation in these programs is voluntary and is in addition to the specific training given to our people while on the job.

Goals for these in-service training programs are as varied as the interest and needs of our instructors. They range from receiving a high school diploma to a Ph.D. Degree.

3 Instructional Methods and Techniques

The educational philosophy of the Air Training Command is "learn by doing" with emphasis on maximum student participation in all teaching-learning situations. The type of instruction which we employ to exemplify this philosophy within the Air Training Command is identified as the "developmental approach." It is frequently referred to in educational literature as functional education. More specifically, the term "developmental approach" is used by Air Training Command to define the type of instruction whereby the student learns through purposeful, guided, mental and/or physical activities. It demands self-directed and initiated activities on the part of each student. Thus, it is essentially student-centered and problem-oriented. It requires the use of a variety of techniques and methods of instruction, and the instructor must adapt his procedures to meet the needs of the learning situation.

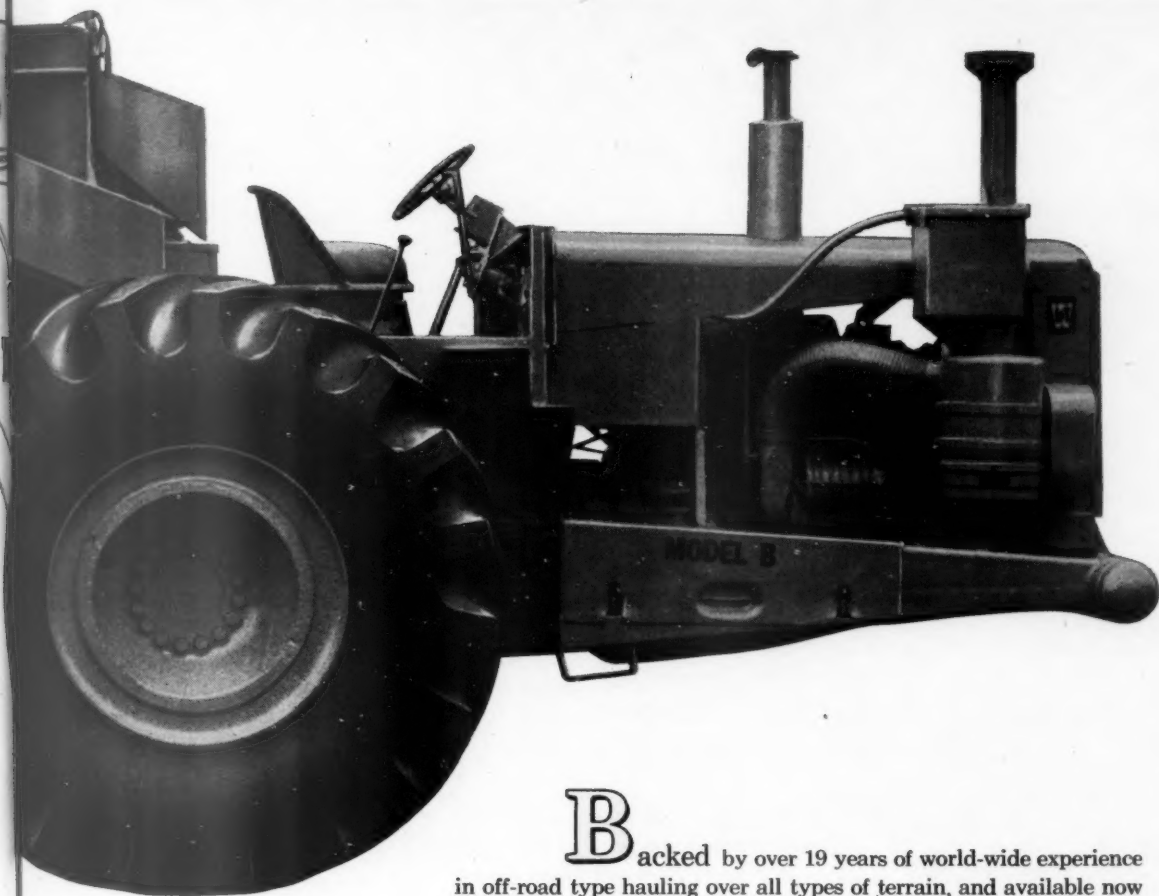
Effective instruction, therefore, requires our instructors to have a clear understanding of the relationship between instructional methods and student learning. In this regard, it is our policy within ATC to consider the various methods of instruction as tools to aid learning.

Accordingly, our instructors are trained to have a variety of methods at their disposal and to know which one to select in a particular situation. The good instructor, like the master craftsman, knows the importance of

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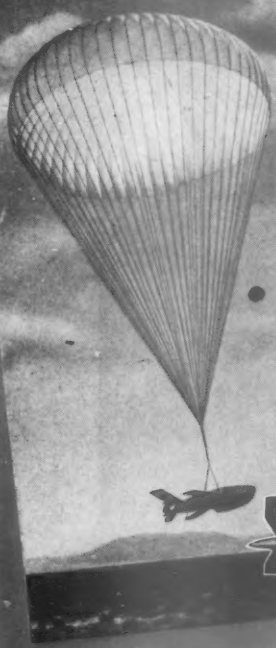
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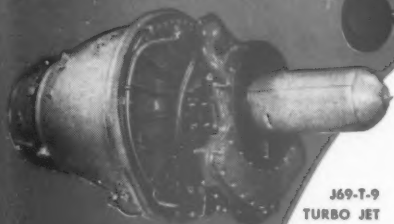
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Where quality is a habit

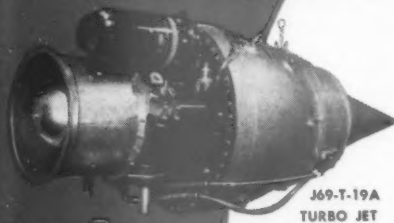
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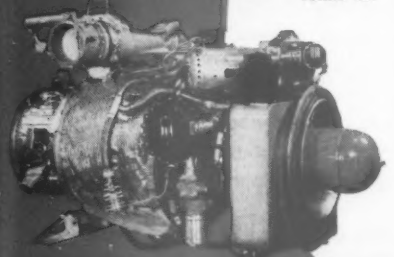
RYAN Q2 FIREBEE
TARGET DRONE



J69-T-9
TURBO JET



J69-T-19A
TURBO JET



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CAE power chalked up another record recently, when a Ryan XQ-2B Firebee jet target drone set unofficial world's records of 53,000 feet altitude and 104½ minutes of flight at Holloman Air Force Base.

The J69-T-19A is one of three gas turbines now in production at CAE. A second version, the J69-T-9, powers Cessna and Temco jet trainers for Air Force and Navy respectively, while the Model 141 air compressor is the heart of the TC-106 mobile starting unit for jet aircraft.

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selecting the right tool to accomplish a given job more efficiently.

Regardless of the method used or the subjects being taught, our instructors are required to employ teaching methods and techniques which require students to THINK. To facilitate this concept, students must exercise their reasoning powers to gain knowledge, learn skills, and solve problems. Accordingly, it is essential that students be the center of all instruction. They must associate current knowledge and past experiences with the subjects being presented. This is achieved through successive logical steps directed by the instructor, and is one of the means whereby we are able to build quality into our training program.

4

Curricula Content and Supplemental Literature

At present, there are over 600 formal training courses in Air Training Command, varying in length from 2 to 48 weeks. The average number of training days per course is approximately 100 days. In order to assure ourselves that we are building the highest quality possible into our training effort, it is essential that course content, syllabuses, and supplemental literature be written so as to foster the growth and development of the student toward a well-defined objective. Our policy, therefore, in regard to training literature is that it be prepared specifically for each course of instruction and contain only that material needed by the student in order for him to accomplish the course objectives.

The logical consequence of this policy is that the instructor/supervisor prepares the bulk of the training literature because he is the one most familiar with the course content, sequence of instruction, topic importance, and the best methods of instruction. This insures that only the proper material is presented at the appropriate time and is associated with current equipment, techniques, and procedures. The job or course objective determines what material is pertinent, rather than the literature itself. Consequently, extraneous material is kept at a minimum.

This type of literature is used most extensively throughout Air Training Command. We call each of these a Training Project (TP). It is a student-oriented publication and is prepared for each unit of instruction. It is frequently the primary textual material used in training. There are approximately 25,000 TP's currently in use throughout the Command.

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A second type of training literature used throughout Air Training Command is the Training Manual. Training Manuals are published on subjects and operations which are stable and not subject to frequent change. There are three types of Training Manuals: Air Force, Air Training Command, and Training Air Force. Air Force Training Manuals pertain to subjects and operations which are generally applicable to more than one major air command. Approximately 40 Air Force Manuals are currently being used in our training programs. Most of these are prepared by Air Training Command personnel. ATC Training Manuals contain information which is primarily of general interest to more than one Training Air Force (TAF), while a Training Air Force Manual applies to a specific course of instruction given in that particular TAF activity. Both of these types of manuals are prepared by ATC personnel. Approximately 20 manuals of each are currently in use—and about 35 are in the process of being prepared.

A third type of publication used in our training programs is the Technical Order. The Technical Order is a directive-type operational publication designed to furnish specific technical directions and information with respect to inspection, storage, operation, modification, and maintenance of all Air Force equipment. The magnitude of the T.O. system is quite large, consisting of about 30,000 publications. The Air Materiel Command has the responsibility for compiling and issuing all T.O.'s.

Instructor's handbooks are often prepared as teaching aids. They present an orderly sequence of instruction and may contain background material not readily available in a usable form. They also assist in the standardization of instruction and material presented.

These are the major types of training material used by the Air Training Command. Developing and maintaining a high degree of quality in these publications has a direct effect on the quality of our graduates and, in turn, on the quality of the men who will fill the ranks of the United States Air Force in future years.

5 Training Aids and Devices

Training aids experts estimate that synthetic trainers, which are only one type of training aid, saved the Air Force \$129,000,000 and 524 lives during World War II. While these estimates are admittedly very rough, they

nevertheless indicate the effect that training aids and devices can and are having on the quality of our training programs.

Since World War II, training aids and devices such as mock-ups, synthetic trainers, films, film strips, movies, textbooks, posters, schematic diagrams, etc., have saved ATC millions of dollars. They have increased our training effectiveness, helped to guide our instructional staff, and have added a degree of realism to our training programs which can be matched only by an actual on-the-job situation.

As in our curricula program, it is our policy to encourage the instructor/supervisor, wherever possible, to develop training aids that are most applicable to his training program. He is the one who is most aware of the need for a training aid to assist in showing or demonstrating a principle that he has found difficult to put across to the student by training literature, lectures, and use of blackboards. The Air Force-wide Suggestion Program has proved an incentive, in many cases, to the instructor/supervisor in designing valuable training aids in his spare time. This has not only improved our quality of training in many instances, but has further motivated the instructor/supervisor by providing him a reward for his suggestion.

As our philosophy of training has shifted from a theoretical to a practical or functional approach, we have had a growing need for various training aids and devices with which our students could actually work. These devices have enabled our students to participate in classroom exercises and activities which otherwise would have been mostly lectures. Furthermore, they have aided our instructors immeasurably in duplicating typical on-the-job conditions in the teaching-learning situation.

Training aids and devices, therefore, represent another means of improving the quality of our training activities. In many instances, they have enabled us to simplify and shorten the learning process. This results in a better qualified graduate in a shorter period of time, at less expense to the taxpayer.

6 Training Facilities and Equipment

Peace in the world can be maintained only if our enemies quantitative superiority in manpower can be offset by our qualitative superiority in facilities, equipment and efficiently trained men. Effective training, however, can not be done with obsolete

equipment and facilities. *Therefore, it is our policy to train and retrain our personnel on the latest available techniques and facilities applicable to modern warfare.*

Air Training Command with its 30 bases and 9 Contract Flying Schools comprises approximately 4,088,000 acres of real estate. Twenty-one of these thirty-nine bases are classified as permanent installations. Facilities comprising the physical inventory of ATC bases amount to over \$3 billion.

Of these facilities that are common to nearly all Air Force bases, our academic buildings receive the greatest attention. We have modernized our classrooms, improved our lighting and equipment, and installed air conditioning wherever it would add to the comfort of our students. These modern facilities improve the morale, mental alertness, and attitude of our students, and provide a classroom environment conducive to learning.

7 Student proficiency and Graduate Evaluation

The basic aim of all effort in the Air Training Command from the planning at the highest level to the supporting function at base level is to promote student learning. Only to the extent that our graduates can perform their assigned tasks in the using Air Force commands can we be certain that our mission has been successfully accomplished. Our training administrators are vitally concerned with evaluating our graduates in the field as well as measuring the proficiency of our students in training.

Consequently, we in ATC have developed two basic approaches to evaluating our training programs: (1) Effectiveness of graduates and (2) student progress. Effectiveness of our graduates on the job is the most important single measure for evaluating our training programs. The ability of our graduates to carry out their assignment in the field is a direct indication of the quality of the training being conducted throughout our Command. As such, follow-up information concerning the performance of our graduates is very essential to our operation. We obtain this information in three ways:

1. By correspondence.
2. By field visits.
3. By normal rotation of personnel.

None of these methods is considered to be complete in itself; each method augments the others. The correspondence questionnaire is probably the most widely used method for gathering information on the perform-

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ance of our graduates. Two types of check sheets are used in these questionnaires. One type we send direct to the using agency to be filled in by the graduate's immediate supervisor. This questionnaire indicates the student's ability to perform in the specialty for which he was trained, and identifies his strength and weaknesses. In addition, a second type is sent directly to the student. Both of these questionnaires are sent out some three to six months after the graduate has been in his new assignment. Approximately 60% to 70% of these questionnaires are returned, and of those returned approximately 80% contain usable data.

Field visits represent a second method of obtaining information relative to the quality of our training programs. Field visits by our personnel provide us with first-hand information of what is expected of our graduates once they are on the job, as well as their effectiveness in performing their jobs.

Another more indirect but vital source of graduate evaluation information is the normal rotation of qualified personnel from the using agency and into Air Training Command as instructors and supervisors in our training programs. Such personnel, by virtue of their recent experience in the field, possess first-hand information regarding the nature of a given job and the quality of recent graduates.

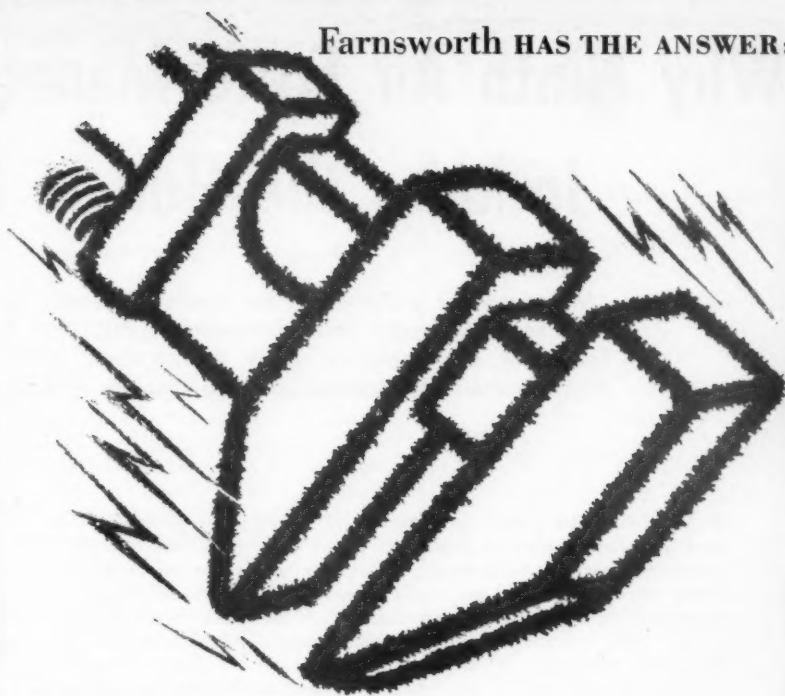
A second method used in evaluating student progress is the use of project grades, written tests, and performance examinations which are given at appropriate intervals throughout the courses. *It is our policy that these examinations as well as the material being taught be based upon the knowledge and skills required to perform on the job.*

In summary, the second method of student evaluation, student progress in school, provides a good indication of course efficiency, providing the field evaluation of students shows our training programs to be satisfactory.

The basic philosophy dictating the establishment and maintenance of our evaluation system is that evaluation provides another means whereby we can improve the quality of our training and of our graduates.

In conclusion, the basic principle of management which governs all operating policies throughout the Air Training Command is this: Continually strive to improve the quality of training we are giving our personnel. By providing a quality trained airman to man and support the USAF's quality equipment and facilities, we believe we are keeping faith with the people of the United States by providing them with the most effectively trained Air Force in the world today.

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Why Ninth Air Force Management Includes the Human Element

"Management policies of the Ninth Air Force are successful only if they serve to build and maintain a tactical air force with adequate firepower and mobility ready for combat, while at the same time training men for leadership in our society whether in war or peace."

● The Ninth Air Force, as part of the Tactical Air Command, is ready on short notice to deploy its forces for tactical air operation anywhere throughout the world. By its very nature, the Ninth is subjected to the brunt of an ever-changing technology. Advances in supersonic aircraft, in new weapons, and in modifications of existing aircraft and weapons require almost constant adjustments in the allocation and use of manpower and materiel. These constant changes are necessary if the Ninth is to have at all times the utmost of firepower and mobility, but these constant changes are a challenge to management for developing efficient and effective utilization of available resources in equipment, facilities, and personnel.

● Modern warfare, with its tremendous demand for increased firepower and mobility, has not decreased in the least the need for good leadership and management. On the contrary, a fast-moving system of mechanization demands leadership that can and will employ the very best in management. This type of management, however, must be more than just a driving force designed to whip men and equipment into action; it must also maintain one great asset—the ability to spark human motivations and fire the will of men to do.

● Many people feel that the problems experienced in the military services are comparable to those found in the average American factory. Industry, however, deals with tangibles that can be measured by profits and losses. Trends in industrial production become apparent almost overnight, and the effectiveness of industrial management procedures are quickly detected. These things are not true of the Air Force, especially of a tactical air force, where very few activities can be found comparable to those in industry. The fact that a military force deals with an intangible product—NATIONAL SECURITY—means that the measure of effectiveness cannot be in terms of statistics alone, nor in terms of profits and losses. NATIONAL SECURITY is measured in terms of the greatest firepower and mobility possible, the tops in morale, and the strictest economy of operation. To accomplish such a task our management system must be one that will not fail.

● Although the methods of application vary, the same basic management tools are used in industry and in the Air Force. The present-day complexity of operations, as pointed out in the paragraphs above, demands the use of such management tools as Planning, Organization, Directing, Coordination and Control, Management Improvement, and Management Engineering programs.

By Maj. Gen. Edward J. Timberlake

Commander, Ninth Air Force

WITH EMPHASIS on the use of modern management tools, there is a tendency to interpret management as meaning *tools*. The mere possession of the tools does not, within itself guarantee effective management. Management is defined as: (1) the act, art, or manner of directing or conducting, or (2) the skillful or prudent use of a means to accomplish a purpose. From these definitions, it is obvious that management is pre-eminently the manner in which management tools, so readily available throughout the Air Force, are used. Effective use of a management program is dependent upon each commander and his ability to apply the program to his particular activity.

It is worth repeating that the commander is the most effective force in any management program. The flexibility of the program enables a commander to take into consideration his resources and capabilities and to apply management procedures accordingly. Though any one program may be applied at different installations in entirely different ways, the results obtained should be the same.

The Ninth Air Force strives for the kind of management that during any emergency will reach the optimum of its men's capabilities; it seeks the coordinated effort of all personnel sparked by the leadership of the commander in each unit. An able commander recognizes that accomplishment of any operation is achieved through this coordinated effort of everyone from the commander down to the lowest-grade airman.

Good Example

The Wing Rating System used by the Ninth Air Force is a good example of effective management control methods made necessary by the increasing complexity of the problems faced by the Ninth. This rating system presents concisely, in terms of cumulative points, the results of management analyses derived from regular reports,

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ARMED FORCES MANAGEMENT

research data, and past experience. The major functional areas of operational readiness, training, and support are evaluated on the basis of relative importance in performance of the mission and of relative command deficiencies. These three major operational categories are further subdivided into sections to reveal the status of resources of manpower, materiel, training programs, aircraft, crews, and other factors, all of which portray the "pulse" of the individual wings.

Staff Must Help

In the regular presentation of the Wing Ratings in the monthly Command Briefings, active participation by staff members is mandatory. Subsequently, each wing commander in the field receives the monthly analysis of the Wing Ratings which indicates: (1) the overall effectiveness of his wing in terms of operational capability, (2) the effectiveness of his command as compared with other similar units, and (3) the operational trend his unit is projecting.

Human relations in the field of management have been widely recognized and developed during the past decade. This human element has been the winning force, other things being approximately equal, that has guided military operations to victory down through the ages.

Dr. Donald W. Cox, of the Air University, in an article "Subordinates can be Leaders too!" ably supports the "human element" as a dominant factor in today's warfare. He quotes from Count Wolf Baudissin's article "The New German Army" in a recent issue of *Foreign Affairs* to portray the changed view of the relation between the leader and the follower in a modern democratic military situation: "Traditional ways also fail in the face of technical progress in so far as concepts of military authority and soldierly obedience derive from the world of patriarchal feudalism. The range, speed, and complication of military operations in the age of motor and radio, and the variety and complexity of weapons and equipment have left their mark on the military social structure. The tactical and technical specialist has taken his place as an equal in importance alongside the tactical leader."

Through the interlocking and far-reaching possibilities of air reconnaissance and radio, the modern leader controls his unit as completely as the fencer his rapier. But he must realize that mere subordination can accomplish little. Success will depend upon mutual confidence, latitude in orders and delegation of initiative to the

lower echelons. The 'melting' of the superior into the group (or rather the raising of the subordinates) becomes particularly evident in the airplane, tank, or submarine. The superior ranks above his subordinate for purposes, of coordination, but since he usually is less well equipped in special knowledge he is restricted to that one special function. In other words, he has to rely on the cooperation of his subordinates in thinking and acting just as much as they rely on him for leadership.

These new social conditions in motorized and armored units, in the air arm and in submarines produced attitudes and codes during the war which come far closer to the concept of a free community based on mutual partnership than to the traditional picture of patriarchal authority over 'minors.'

The American concept of the military demands more than the building of a great fighting machine. Its program for the preparation and training of men is based on the possibilities of leadership and usefulness as American citizens while enjoying all the available fruits of freedom. The validity of this concept has been demonstrated time and again when top caliber men, developed by the military services, have assumed places of leadership in the fields of governmental services and industry.

Bendix Launches Air-Collision Study for ARDC

An aircraft-collision-avoidance research program aimed at the development of a practical anti-collision device has been started by the Radio division of Bendix Aviation Corporation under a contract recently awarded by the Air Research and Development Command of the Air Force.

Details of the program, scheduled for completion in March, 1958 with delivery of a flight-tested research model to the Wright Air Development Center, Dayton, O., were announced by A. E. Abel, general manager of the division. The program involves a study of the over-all collision-avoidance problem as it applies to both commercial and military aviation, and will include a "technically sound definition and description of the problem," Abel said.

It also includes an evaluation of all collision-avoidance techniques, and the construction of a research model based on the best practical solution of the problem.



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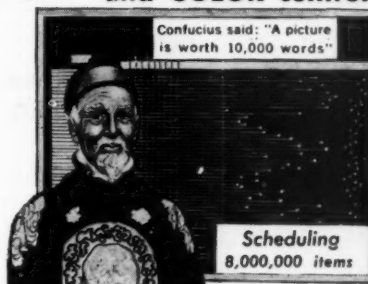
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Coast Guard Management: How

Probably no other Armed Force faces management problems more diversified and complex in character than the United States Coast Guard. For, while the Coast Guard is the smallest of the nation's armed services, it is unique in that it has military and non-military functions both in peacetime and war.

Here's the Job . . .

IN PEACE, under the Treasury Department, the Coast Guard carries out a host of duties aimed at the protection of life and property at sea and the enforcement of maritime laws as specified in the United States Statutes. In war, it serves as part of the Navy. This duality of mission creates problems of management which arise in no other service.

Operations Encircle the Globe

The management of the Coast Guard is further complicated by the wide scope of its operations which virtually encircle the globe. The service is responsible for search and rescue; flood and disaster relief; security of ports and harbors; the protection of shipping and safety of cargoes; the enforcement of motorboat regulations; the operation of an aids to navigation system; and the conduct of such programs as the International Ice Patrol; ocean station program; those concerned with ice breaking, aerology and oceanography; and the maintenance of a communications network and intelligence service. In addition to maintaining hundreds of lifeboat stations, lighthouses and other small installations along the shores of the United States and its possessions and the banks of its many inland waters, the Coast Guard operates the Loran network which extends from Greenland to the Philippines to the islands of the Caribbean; its ocean station vessels are found in mid-Pacific and mid-Atlantic; and its air and surface craft from Newfoundland to Puerto Rico and from Alaska to the Philippines.

Premium on "Quick-Change" Ability

This multiplicity of Coast Guard peacetime functions in such a vast area of responsibility, plus the need for military readiness and the relatively small size of the service, places a heavy premium upon the ability to make rapid and efficient adjustments to quick-developing situations. A buoy tender or port security patrol boat may be required to become a search and rescue vessel upon short notice; or a lighthouse keeper may suddenly become a mountain climber in order to rescue survivors of a crashed plane. The Coast Guardsman must be able to adapt himself to ever-changing conditions.

Primary Mission Is Safety

All Coast Guard duties have roots in maritime and naval background and broadly speaking, it could be said that the primary mission of the Coast Guard or its product is "Maritime Safety."

As with any organization providing service, the quantity and type of required tools vary with the needs of the customer. Needs are seldom static. This is especially true in the case of the Coast Guard as witnessed in part by the tremendous increase in pleasure boating and aviation activities in the United States. Needless to say, the Coast Guard's forces have not risen proportionately—nor should they as, fortunately, the accident toll, although rising, has not risen at a similar rate.

ARMED FORCES MANAGEMENT

a Small Force Does a Big Job

By Rear Admiral F. T. Kenner
Chief, Coast Guard Office of Operations

And Here's How It's Done . . .

THE FORCES AVAILABLE to carry out these functions consist of more than 1700 manned facilities, including vessels, air stations, bases, depots, and a modern shipyard; and thousands of unmanned facilities, such as buoys, beacons and air navigational aids.

Although decentralization of operations has been accomplished through the delegation of responsibility and authority to the district commanders, it is the Chief, Office of Operations, under the Commandant, who prescribes the basic plans and procedures. To assist him he has an immediate staff of three commissioned officers and five civilians, and eight divisions, each headed by an officer of the rank of captain.

These division chiefs assist the Chief of the Office in determining the number, types, and characteristics of units to be operated, as well as their allocation and functional assignment. They conduct studies to determine the immediate and future requirements for a program which will meet the needs and acceptance of the public. As need for change becomes apparent, services are extended, reduced or discontinued and units or personnel are shifted to accommodate varying workloads. Similarly, operations in the field are studied in order to correct errors or improve techniques and procedures. (Even the highly successful rescue following the recent PanAm ditching revealed several items which have led to more effective procedures.)

Management of field facilities, other than policy guidance, consists of mainly supplying district commanders with sufficient ships, planes, and other units properly designed and equipped to carry out their responsibilities and providing for their orderly replacement as they become overage or obsolete. The associated problems are comparable to those of the other Armed Forces. However, it is desired to point out a few unusual aspects of our operations. Let's take a quick look at the work of these eight divisions.

Chief Directs Eight Divisions

What the Eight Divisions Are

1—Aviation . . .

has the basic mission of providing operational commanders with sufficient aviation capabilities to meet Coast Guard requirements for search and rescue, law enforcement, and military readiness. Further, it develops plans and procedures for efficient and economical use of Coast Guard aircraft and personnel in service operations.

2—Floating Units . . .

has as its primary responsibility the development of a program aimed at assuring the most effective use of properly designed and equipped ships in the conduct of Coast Guard operations. In line with this objective the division formulates instructions for the guidance of field commanders. It also appraises the effectiveness of their

efforts through the medium of detailed operational reports submitted to Headquarters. Through the latter, the workload of various districts is evened out by deployment of ships from district to district as fluctuation of workloads dictates.

3—Shore Units . . .

administers the program of the Coast Guard for effective utilization of shore-based facilities. In addition to determining and defining the operational requirements of shore units (i.e., real estate, small boats, vehicles, etc.), the division coordinates the program for the utilization of all shore establishments to achieve the desired operational potential.

4—Aids to Navigation . . .

administers the system of maritime aids dotting the nation's navigable waters, harbors and coastline and is responsible for Coast Guard Loran stations and radar and radio beacons. The service is fully cognizant of the importance of the efficient operation of our more than 39,000 beacons, lights, fixed signals, buoys and stations comprising this system, and of improving them to meet the increased needs of maritime commerce. Consequently, last year, 10 percent of these aids were relocated, disestablished, or newly-established for greater economy and to improve the system. The users of this network are kept fully and currently advised of these changes and "outages" through the issuance of Notices to Mariners, Notices to Airmen, and up-to-date Light Lists.

5—Communications . . .

manages the far-flung communications network which the Coast Guard must operate in connection with its varied functions and wide geographic distribution. Since the Coast Guard operates as a specialized service under the Navy during wartime, it is essential that its communications system be compatible with that of the Navy. Too, as part of the marine safety program it is mandatory that the Coast Guard's system conform to those of non-government maritime and aeronautical agencies. Consequently, our network must be so designed and implemented that amalgamation with both the Navy and maritime systems may be effected at a moment's notice if necessary.

6—The Port Security and Law Enforcement . . .

program has experienced more ups and downs in recent years than any other Coast Guard function. Forces

used to guard against the introduction of illegal, contraband or nuclear shipments into the United States, guarding docks against fire and sabotage, etc., reached a peak during World War II and the Korean conflict. In between wars, our regular and reserve personnel have been trained in this field only on a contingent basis and as a cadre ready for immediate expansion if desired. For example, ORTUPS 03-856 (Organized Reserve Training Unit (Port Security)) at Wilmington, Delaware, where there is no Port Security unit today, would be mobilized to take over the above duties should hostilities be declared in the near future.

7—Operational Readiness . . .

conducts a program designed to assure proficiency of units afloat, ashore and in the air, in time of war or peace. Close liaison is maintained with the Office of the Chief of Naval Operations to assure that armament is fully in accord with probable missions with the Navy in national emergency. Also, through cooperation with Fleet Training Groups and through training conducted by Coast Guard Ship Training Detachments, exercises are held to increase proficiency in seamanship, damage control, search and rescue problems, and many other phases of operations carried on in peacetime.

8—Intelligence . . .

in addition to the normal administrative and technical assistance provided by all armed forces intelligence organizations, is responsible for the maintenance of over a half-million finger print files for Coast Guard and Merchant Marine personnel. The latter files are kept in connection with the Coast Guard's Port Security functions to aid in detection of subversive activities in the maritime industry or on the waterfront.

Search and Rescue Is Paying Off

The Coast Guard's search and rescue activity has paid dividends out of all proportion to the costs involved. This uneven ratio is undoubtedly due to planning and management based on long experience and intensive training in this field.

Recently, search and rescue efficiency has been greatly improved by agreements completed under the provisions of the National Search and Rescue Plan. Through a SAR communications network, our Rescue Coordination Centers can at a moment's notice augment our own rescue forces with those of other military and civil organizations. Furthermore, these res-

cue forces (Army helicopters, Naval ships, Air Force planes, yachtmen, commercial fishermen, etc.), can be coordinated with much greater speed and general efficiency than ever before, thus effecting wider SAR coverage with little change in our own personnel and facilities. Through this concerted effort of available forces, search time is reduced and the probability of rescue greatly increased.

Evaluation of such cooperation in SAR operations has permitted the Coast Guard to reduce the number of its large seaplanes capable of landing offshore—replacing some of them with less expensive amphibians and helicopters.

One Solution in Use—Accident Prevention

There is no question that the saving of lives from treacherous, tossing seas is a dramatic and exciting Coast Guard activity, one that frequently captures the newspaper headlines. But important though this function is, we must also concern ourselves with the less dramatic but equally urgent job of accident preventing.

Many a death has been prevented on and over the water because of the safety programs of the Coast Guard. Our Airline Indoctrination courses have guided the training of thousands of air crews in ditching, evaluation, and survival procedures as developed by the Coast Guard and published last year in its manual "Aircraft Emergency Procedures Over Water." It is interesting to note that the pilot who ditched the strato-cruiser in mid-Pacific last fall, without loss of life or even serious injury, had taken this course and had a copy of this manual.

Our personnel and those of the Coast Guard Auxiliary have given boating safety talks to innumerable yacht clubs, outboard motorboat associations, and similar organizations.

Thus, through the preventive measure of safety education, the lack of balance between personnel and facilities and the workload has been overcome to a large degree.

Looking Ahead

From all this, it can readily be seen that the direction of the Coast Guard's Office of Operations is a complex and challenging job, one that is not likely to diminish in the years ahead. For with the constant forward thrust of industrial and scientific technology, it is highly probable that our responsibilities—and hence, management and planning problems, will become even greater in the future. It is a challenge and a sizeable job, but one that pays off not only in dollars but in lives.

Featured This Month



Lieut. Gen. C. T. Myers, USAF

Charles T. Myers was born at Mannington, W. Va., February 10, 1900. He entered Virginia Military Institute in 1918 and a year later was appointed to the United States Military Academy. He was a member of West Point varsity football teams in 1921 and 1922 and was graduated in 1923 with a Bachelor of Science degree and commissioned a second lieutenant in the Regular Army.

He entered flying training at Brooks Field, Texas, in September, 1923, and won his wings a year later at Kelly Field, Texas.

After completing the ten-month course at Maxwell Field in August, 1938, General Myers was assigned to Miller Field, Staten Island, N. Y., as an instructor with the New York National Guard.

By the time General Myers had completed his mission with the National Guard in November, 1940, draftees were on their way to camps in the first peacetime conscription in United States history. The Air Corps was expanding under the slogan, "Keep 'em Flying," and General Myers was assigned to the Gulf Coast Training Center, now known as the Flying Training Air Force of the Air Training Command. The GCTC was located at Goodfellow Field, San Angelo, Texas and General Myers served as director of training.

General Myers went to the Pacific in May, 1947, as chief of staff Far East Air Materiel Command, Fuchu, Japan. In October, 1947, he assumed command of the 136th Bombardment Wing at Kadena AFB, Okinawa. The following summer he was appointed commanding general, First Air Division, Far East Air Forces. In December, 1948, the First Air Division was replaced by the 13th Air Force and General Myers remained as its com-

manding general. In May, 1949, he was named vice commander, Continental Air Command, Mitchel AFB, N. Y.

On January 1, 1951, Air Defense Command was reactivated at Ent Air Force Base, Colorado Springs, Colo., and General Myers served as its vice commander until March 1952.

In July, 1954, General Myers was appointed Commander, Air Training Command, with headquarters at Scott AFB, Illinois.

Major Gen. E. J. Timberlake

Major General E. J. Timberlake was assigned as commander of Ninth Air Force during September 1951. Since his assignment, he has had the responsibility for the largest growth of TAC units outside of war times. He



has activated 57 separate units including 15 wings and 14 groups, built 5 new bases from World War II sites, and deployed in a trained status overseas and to other commands, 30 units including 9 wings. There have been 27 active units assigned to Ninth Air Force during his tenure of command and he has organized an additional 39 units.

He had the further distinction of commanding the first supersonic tactical fighter units and the development, training, and deployment of tactical missile units. While directing the activities of Ninth Air Force, an entirely new concept of employment of tactical air units was conceived and perfected, that of the Mobile Atomic Strike Force. This latter is also referred to as the composite Air Strike Force. As the leader of the combat arm of the Tactical Air Command, he directed the conversion of his units to an all jet Air Force.

General Timberlake has been awarded the Distinguished Service Medal, the Distinguished Flying Cross

with three Oak Leaf Clusters, the Silver Star, the Legion of Merit with an Oak Leaf Cluster, the Air Medal with five Oak Leaf Clusters, and the Distinguished Unit Badge with two clusters. He is rated a command pilot.

He is married to the former Marjorie Campbell of San Antonio, Texas. They have three children.

Rear Admiral F. T. Kenner

Rear Admiral Frank T. Kenner, Chief of the Coast Guard's Office of Operations, is one of the busiest men in this versatile service. He administers such varied and important tasks as communications, floating units, intelligence, operational readiness, shore units, port security, and law enforcement. The work of his organization spans the globe and keeping up with its many developments is a strenuous job.

He was appointed Chief of the Office of Operations in July 1956.

Rear Admiral Kenner, a Virginian, was graduated from the Coast Guard Academy in 1924 and commissioned as ensign. Since then he has served on destroyers, on patrol boats, on various cutters, on port security duty, at Headquarters as Chief of the Planning Division, at Honolulu as Commander of the Fourteenth District, in the Pacific during World War II.

His decorations include the Legion of Merit for exceptionally meritorious service in New Guinea and the Philippines as Commander of the Coast Guard-Army Manning Detachment; the Cavaliere Ufficiale, Order of the Crown of Italy. Among his campaign ribbons are the American Defense Service, American Campaign, European-African-Middle Eastern Area, Asiatic-Pacific Area with star, Philippine Liberation with star, and World War II Victory.

He was promoted to the rank of Rear Admiral in May 1953, three years before returning to Headquarters as Chief of the Office of Operations.





Stretching along two sides of Cartierville airport in St. Laurent near Montreal, Canadair's three Plants have 65 acres of floor space.

Why Canada's Defense Role is Growing

By J. Goeffrey Notman

Pres., Canadair Limited

THE OPPORTUNITY of writing a few words in a publication addressed to the U.S. armed forces about the Canadian defense effort, and about my own company, Canadair Limited, is very welcome at the present time.

The long-cherished tradition of being good neighbors across the longest unguarded border in the world has, in the past few years, taken on a new and more urgent tone. In the age of the guided missile, our large, extended land areas and the buffer of two oceans, no longer seem to provide any security at all in themselves, and we have come to realize that our defense problems on the North American continent are one and the same problem. We form a single strategic area. It is



Canadair's CL-28 takes off on its maiden flight, three days ahead of schedule.

for this reason that our activities here in Canada, as well as in Canadair Limited, may be of some interest.

In our many meetings with Americans who come to visit us at Canadair, much surprise seems to be shown in the fact that the kind of advanced enterprise we have built up here is to be found in Canada. There are many who are skeptical whether Canadian manufacturing facilities are as modern and efficient as the ones in the United States. In a country such as ours, generally known for its vast unsettled expanse and its abundant natural resources, it comes as something of a surprise to find one of the most modern aircraft plants in the world.

This situation illustrates the dual character of Canadian development since the war. Both our natural resources and advanced manufacturing facilities in this country are simultaneously going through a remarkable period of expansion. In fact, a recent report by the Royal Commission on Canada's Economic Prospects indicated that Canada could well expect to continue along both these lines of development for the next twenty-five years in roughly the same proportions as today.

One of Canada's major achievements in defense is the part she plays in the North Atlantic Treaty Organization. From the very beginning, Can-

ada took a leading part in promoting the concept of collective security among the nations of the North Atlantic and in establishing a defense organization for that purpose. Since the signing of the North Atlantic Treaty on April 4, 1949, Canada has contributed air, naval and military forces as well as making significant contributions in the form of a Mutual Aid Program.

There are at present twelve squadrons of the R.C.A.F. in Europe, most of them equipped with the Sabre VI, a version far advanced over the original Sabre, with significant improvements in speed, ceiling and maneuverability. The Sabre VI is powered by the Orenda 14 jet engine made by A. V. Roe Canada.

Canada's Mutual Air Program has included the supplying of military equipment to most of the NATO countries. Since the formation of the alliance, Canada has given away more than \$1,100,000,000 worth of arms, and will give away over \$100,000,000 under this program in the year beginning April 1, 1957. It is not always realized that Canada is on the giving end and not the receiving end of Mutual Aid.

Another significant achievement is the training in Canada of some 4,500 aircrew from various NATO countries.

ARMED FORCES MANAGEMENT

Basic to this whole program was the Canadair T-33 Silver Star jet trainer built under license from Lockheed Aircraft Company. We have built nearly 600 T-33's to date.

Continental Defense

The defense of the North American continent is today, to a certain extent, centered in Canada. The Mid-Canada radar line which consists of some 100 radar stations along the 55th parallel, has just been completed as an all-Canadian project at a cost of some \$200,000,000 and is now in full operation. In 1956 alone, this involved the transport into the North of some 35,000 tons of supplies.

The Pinetree line to the south has now been in operation for some three years, while the DEW (Distant Early Warning) line is scheduled to go into operation this summer. This is an American project which extends from Greenland through the Canadian Arctic to the Aleutian Islands along the 70th parallel and is designed to give the initial warning of an air assault across the polar regions.

We have, in addition, nine squadrons of the Mark V CF-100 jet fighter on the alert around the clock, as well as a ground observer corps of some 80,000 civilian volunteers manning about 5000 observation posts throughout Canada.

Canada today is laying increased emphasis on the threat presented by missile-launching submarines. There is reason to regard the Soviet buildup of a large submarine fleet, which has the possibility of launching guided missiles from several hundred miles off shore, as a serious threat to the North American continent. In this connection, Canada has been developing her maritime forces both in the Navy and Air

Force. The major new aircraft in this operation will be the Canadair CL-28 which is a long-range anti-submarine hunter-killer, currently being test-flown and readied for delivery. It has a wing span of 142 feet, a height of 37 feet and a cruising range of more than 4,000 miles. The CL-28 is not only the biggest aircraft ever built in Canada, but is the largest and best-equipped anti-submarine aircraft in the world with respect to both weapons and electronic equipment. We were considerably aided in the installation of the complex electronics systems in this aircraft by training given personnel at the plants of various U.S. suppliers and the U.S. Naval Training Station at Norfolk, Va.

Although the CL-28 was developed from the basic design of the Bristol Britannia series of transport aircraft, some extensive changes in design and specifications were accomplished by Canadair including the conversion to North American standards and materials. For example, by replacing the Britannia's turbo-prop engines by four Curtiss-Wright turbo-compound engines, the aircraft acquired a much longer range at moderate speed. The aerodynamic design of such items as the forward fuselage power plants and radomes and the trajectory characteristics of bomb-bay stores had to be thoroughly explored in a long-series of wind tunnel tests.

This aircraft required, as well, an extensive test program for an alternating current electrical distribution with constant frequency automatic paralleling, which is a fairly new venture in aircraft manufacture. It has a 400 cycle AC electrical system with a total capacity of 160 KVA.

In the same family of aircraft as the CL-28 is the CL-44, a four-engine

turbo-prop transport for which an order has recently been placed by the R.C.A.F. These will replace the R.C.A.F.'s North Stars with one of the most modern transport aircraft available. The CL-44 will have a cruising speed of about 400 miles per hour and will be capable of being used as either a cargo carrier or a military transport. First deliveries will be made in 1959. A commercial version of this aircraft is also being contemplated.

The Wrap-up

I should like to revert back, in closing, to my remarks at the beginning of this article. The common defense effort which is demanded today from both our countries brings to mind as its logical consequence, something of which I have been an advocate for many years, namely, "complementary production," or the standardization of military equipment in both countries.

This was defined in a Report to The Industrial Defense Board by the Aircraft Committee of the Canadian Ordnance Association, dated September 30, 1948 as follows:

"The greatest possible degree of standardization of military aircraft used by Canada and the United States is most desirable. Such standardization is essential in order to permit the adoption of a complementary production plan. It would also provide for the most efficient use of available North American production facilities by reducing the number of types of equipment which they are called upon to manufacture; it would permit the maximum coordination between the armed services of the countries; it would make possible the ready integration of units of one country in formations largely composed of units of the other country; it would simplify the supply problems in any combined operations, and it would make possible the maintenance of equipment from one country through the use of spare parts and handling facilities available in the other country."

Although we have made a good start in this effort of "complementary production" much remains to be done.

Insofar as our two countries remain a single target before a potential enemy, our defense must remain a united effort.

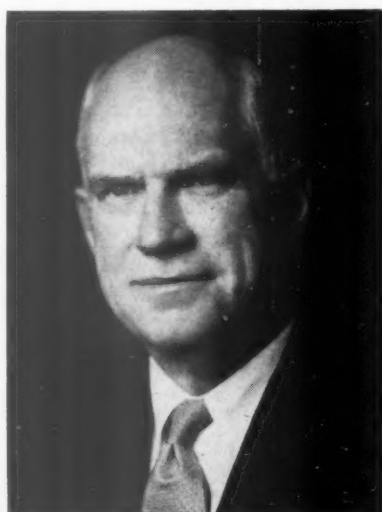
● By the end of 1956, more than 850 students from 25 educational institutions throughout the country were employed at Army installations under the five-year cooperative training program for students in engineering and science.

About the Author

One of the leading figures in the Canadian aircraft industry, J. Geoffrey Notman is president and general manager of Canadair Limited, and a senior vice-president of General Dynamics Corporation, the parent organization.

He has played an outstanding role in Canadian war production as Assistant Coordinator of Production in the Department of Munitions and Supply and in the post-war period on such bodies as the Industrial Defense Board and the Canadian Industrial Preparedness Association.

He is a director of numerous Canadian corporations.





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By
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AUG

What the Army is Doing

About the Gold Mine Between our Ears

IT SEEMS nearly impossible to pick up any of the current business periodicals without finding an article—or at least a reference—on the creative thinking movement. Both business and industry have shown intense interest in this subject, to a point where most of the major private employers are taking positive steps to increase the creativity of their employees. For instance, The General Electric Company reports that their young engineers and scientists who have been trained in these methods average *three times* as many usable ideas as those not trained. Similar testimony from other sources has encouraged rapid spread of training programs. The Air Force has made a 20-hour course in Creative Problem Solving a requirement for all of its ROTC personnel in over 200 colleges and universities. The Ethyl Corporation has employed Mr. Charles Clark on a full time basis to present creative thinking to many of its clients as a free service.

Government Cautious

In keeping with its reputation for solid conservatism, the Federal Government as a whole has approached this trend with considerable caution. As with any popular movement, there is at times a tinge of charlatanism possible in the presentation of such a subject. A recent article implies shallowness to the concept and to some of the methods being advocated. There is more than a hint of fanaticism apparent in the overt showmanship of some proponents.

Yet it is obvious to all of us that creativity is innate in every person, that all human progress has stemmed from the application of these powers, and that it would be highly desirable if such activities could be increased. All of the progress of the human race has come about because men have used their imaginations, they have become curious, they have asked questions, they have speculated.

Naturally such originality was often labelled as bizarre—radical—dangerous. Columbus was thought to be a crack-pot by most of his contemporaries, as were Galileo, Pasteur and even the Wright brothers. Although we no longer put men to death for “wild” thinking, we still continue to make the non-conformist mighty uncomfortable. To complete the paradox, at the same time that we ridicule the free thinkers, we are urging our employees to use their imagination more fully through suggestion systems and incentive award programs.

There's a Blockade

Despite the fact that each of us has innate creative powers at our disposal, there are strong deterrents that tend to restrict our use of these abilities. One is the common mistake of assuming that the only persons who are creative are the artists, the authors, the inventors; and that obviously we cannot claim membership in like groups. Another inhibiting influence is an assumption that most creativity stems from intuition—some mysterious gift by which certain individuals experience flashes of brilliance. The real truth, of course, is that such instances of illumination come about only after one has gone through a number of preceding steps which are absolutely necessary to arrive at such a goal.

The greatest block to creative thinking, however, is the fear of criticism or ridicule. This begins to operate on all of us early in life and by the time we are adults, most of us have settled for conformity. We would actually be embarrassed if anyone would imply publicly that we were “the creative type.”

By Milon Brown, deputy chief
Training and Development Division,
Office of Civilian Personnel

Particularly in such a very conservative climate as exists in military organizations, any departure from precedent is apt to be frowned upon. Military science, backed by engineering precision, has found standard answers for many problems. Some minds seem to believe that there must be one and only one correct answer for any problem. To question these textbook solutions is to appear not only ignorant but almost irreverent. Command makes the decisions and gives the orders: subordinates obey without question or suffer the consequences.

Fortunately this philosophy does not really represent our approach to the solution of the critical problems of national defense. To an increasing extent, military and civilian employees are being encouraged to question, to speculate, to innovate, to suggest new ideas. This movement has resulted in substantial savings through improved methods. It supplies an effective incentive to "think up" new and unique approaches to operating problems.

Currently, however, there is a strong feeling that something else is needed. If we are to meet fully our defense responsibilities we must make optimum use of every facility at our disposal. Surely one of these is the development of new ideas, better ways, more efficient means to protect and preserve our way of life. If it is true that all of us possess creative powers, then we should take positive steps to remove blocks, to unleash the flow of ideas, to increase the effectiveness of our ability to think creatively.

Army Efforts

A number of instances of experimentation in this general area have occurred in the last two or three years. One was mentioned above in connection with the Engineer Corps program.

Engineering Research and Development Laboratory

Back in 1955, several employees of ERDL took a short course in Creative Product Design at MIT. On their return, they introduced the popular group technique known as "brainstorming," and several groups were formed to attack selected research problems. By the Spring of 1956 it was apparent that this was premature and that the method was not measuring up to expectations.

With the advice of Dr. Arnold, a 16-hour orientation program was set up for 150 research technicians. An imposing array of experts from universities and industries presented a series of talks on important aspects of creative problems solving. The test of creativity developed by the A C

Spark Plug Division of General Motors was administered. Somewhat later the participants were organized into 10 discussion groups of 15 persons each, to explore the major topics presented and considered if and how the techniques might be used to good advantage in the Laboratory. Currently there is a good bit of experimentation going on but progress is slow in a climate where proposals for unusual or unconventional projects are almost certain to be turned down on review by higher authority.

The Office of the Adjutant General

One of the military instructors in the Adjutant General's School at Fort Benjamin Harrison has introduced a series of short courses in creative thinking into the curriculum. The sessions seem to be popular with the students although there are no data available on the degree to which the techniques are actually put to use by the graduates. Stimulated by the interest and enthusiasm evident at the School, the headquarters office of the Adjutant General, early this year, cooperated with other staff agencies at the Pentagon in securing the services of Charles Clark to introduce some of the techniques to a few of their officials. There is some evidence already that certain of the ideas presented are being put to use effectively in solving problems.

The Quartermaster School

Another attempt to develop the creative powers of individuals in the Army School System is under way at the Quartermaster Training Command, Fort Lee, Virginia. Although the course deals primarily with communication processes, creativity is taught not only to stimulate interest but in applying communication skills creatively within the framework of practical military problems. Presented to mixed civilian-military classes, the seventeen hours on applied imagination appears to be a complete success. The instructor was called upon to lecture to the faculty of the Army War College on the possibility of changes to the present educational program for Army career officers based upon the requirement for creativity at all levels.

The Office of Civilian Personnel

For several years, individuals in the Office of Civilian Personnel have shown increasing interest in creative techniques. One afternoon has been devoted to the subject in each of the last six groups studying Personnel

Management for Executives. Through this channel some 300 key employees, both military and civilian, from all over the world have been introduced to the subject. In 1955, the Director made use of creative methods in a group of division chiefs to explore program possibilities. Out of this came a number of innovations and suggestions which later were integrated into the overall civilian personnel program for the Army Establishment.

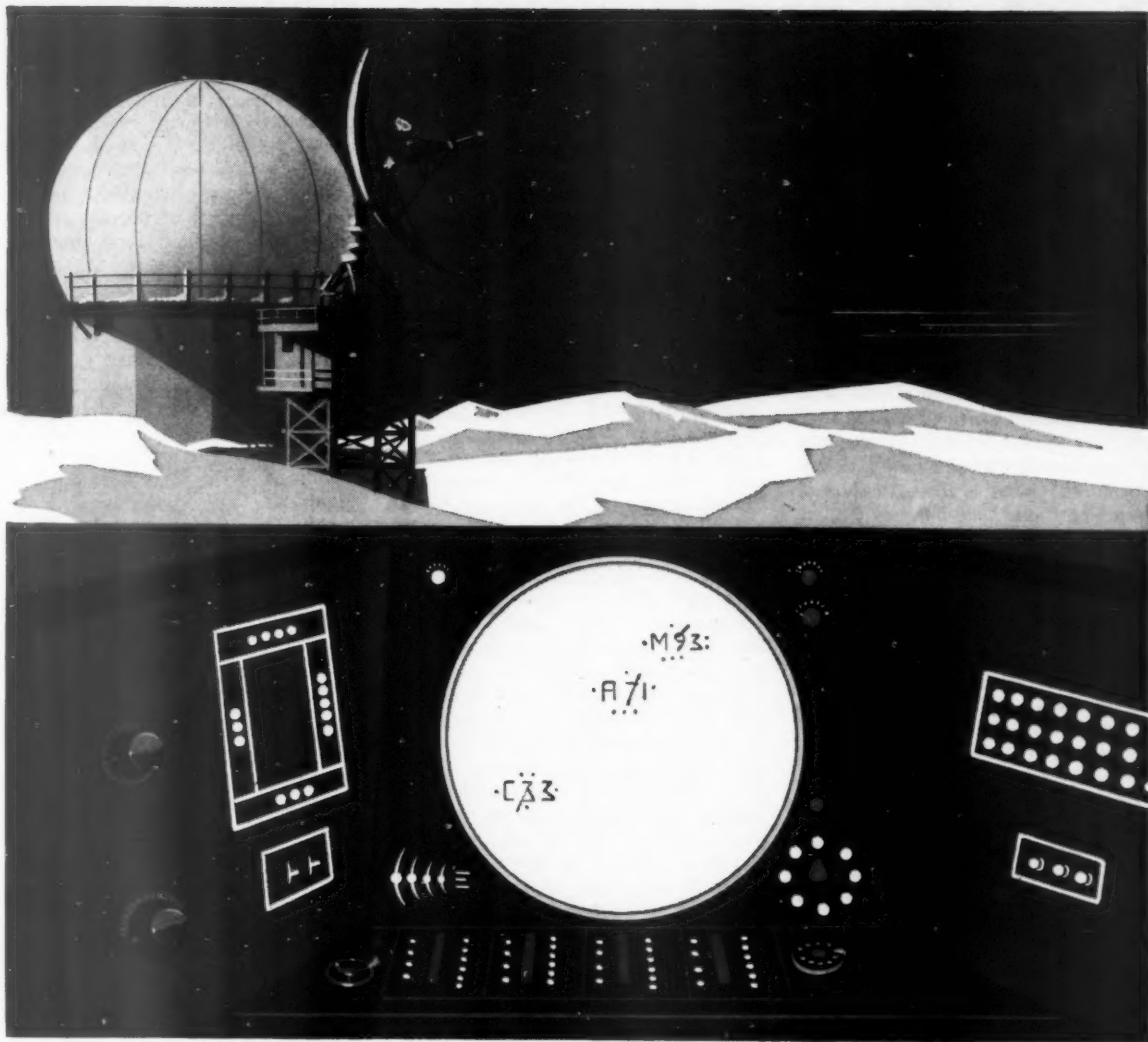
Other Approaches

As mentioned above, Mr. Clark, who assisted Alex Osborn in the preparation of his book on "Applied Imagination," was invited to give in the Pentagon the presentation on creative problem solving which has had such an excellent reception among oil companies and in other industries. Sixty military and civilian officials were selected from the Office of the Secretary, the Office, Chief of Staff and headquarters of Technical Services to participate in a two-hour orientation session. Later two groups of twenty of these persons met to discuss the feasibility of utilizing creative techniques at staff level. At the present, participants are being polled to determine which of a number of proposed follow-up actions would be most feasible. It is probable that at least one group will be organized into a study unit to develop their creative powers through practice while they are exploring further applications within the Department.

Wrap-up

Historically, Army personnel—either military or civilian—have real cause to be proud of their creativity. From the Springfield rifle to the latest ballistic missile, we have proved to be efficient inventors. Our suggestion system produces each year many innovations that are used to improve the efficiency of our operations. Yet we are beginning to suspect that we have actually only scratched the surface of "the gold mine between our ears." Business and industry are finding that it pays to take direct steps to create a climate favorable to the use of creative powers and to train their employees to apply imagination in the solution of problems.

Obviously we cannot rest the defense of the free world upon our accomplishments of today. Outnumbered in manpower, surpassed in natural resources, closely followed in technological and scientific achievements, our sole superiority may prove to be in the realm of ideas. We may well be on the brink of a major effort to increase the creativity of all those who carry the burden of national defense.



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Business and Finance

Building for the Future Through Mutual Funds

PART II

Over 3 million investors—from farm hands to corporation presidents—own 10 billion dollars worth of mutual fund shares! Thousands of military men are investing an estimated million dollars each month. What is the attraction of investment funds that has made them the fastest-growing segment of the investment world?

Last month in this column we briefly covered types of mutual funds and their methods of operation. We pointed out that in simplest terms a mutual fund is a corporation through which many investors pool their capital to gain the diversification and professional management they need but cannot afford individually. Now let's look at the different means of investing in mutual funds.

Every open end fund offers a single payment, or lump sum, investment plan, whereby you purchase either a definite number of shares, or the number of shares that a specific amount of money will buy. Some funds offer single payment investments of as little as \$100. You purchase the shares at the "asking price," which is the net asset value of the shares plus the sales charge.

Periodic Investment

Many funds also offer a periodic investment plan, through which you purchase shares on a monthly quarterly, or other regular basis. In this way you invest on a pay-as-you-go basis, within your budget. Periodic

investment plans fall into two general categories: "front load" and "level load" plans, as they are referred to in the trade. They are sometimes called "contractual" and "voluntary." These last two terms are misleading, as both types of plans essentially are voluntary and neither is actually contractual. "Load" refers to the sales charge. In a front load plan the majority of the sales charge is paid in the early years of the plan—often half the first year—as with life insurance. The remaining portion is then spread over the life of the plan. For example, suppose you agree with yourself to set aside \$10 per month. The particular fund you choose has a periodic plan calling for 150 payments of the size you select. Assuming a sales charge of 8½%, your cost will be 8½% of the total amount you intend to invest (\$1500), or \$127.50. Approximately half that charge would be deducted from the first 12 payments. The other half would be deducted equally from the remaining 138 payments—a matter of pennies from each.

If the same plan were purchased on a level load basis, 8½%—or 85¢—of each \$10 payment would be deducted. The important point to remember is that the dollar amount of sales charge that will be deducted during the full life of the program will be exactly the same in a level load or front load plan. And the final results of the two systems will be much the same. In both plans (and in any investment) if you discontinue your investment in the early years, before your earnings have made up for the sales charge, you may lose money. A mutual fund must be considered as a long term investment.

One advantage of the front load plan is that when you start it, you are agreeing with yourself to invest a fixed amount of money; you set a definite goal for yourself. Because you know when you start that you may lose

money if you discontinue your program in the first year or two, you are more apt to stick to your plan and achieve your goal. As evidence of this, over 60% of persons who start a monthly investment program, either through the N. Y. Stock Exchange plan or with a level load mutual fund, become delinquent in their payments. Yet less than 9% of persons starting a front load mutual fund investment plan fail to complete it.

Now let's examine some of the disadvantages of the mutual fund as compared with other securities. First, of course, is the possibility that if you liquidate too soon you may suffer a loss. Second, it does not have a guaranteed return, such as you have with bonds. Third, you are not apt to "make a killing" or double your money overnight, as you might do with some highly speculative security. Fourth, certain actual expenses of operation of the fund are paid out of income. Fifth, you do not have complete freedom of choice of the companies in the portfolio.

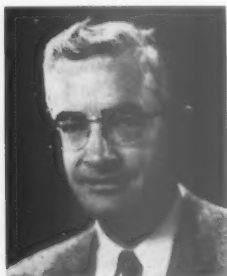
The Advantages

On the other hand, let's weigh the advantages: First, and most important, is professional management. Most funds employ a staff of trained and experienced analysts who spend full time studying economic trends, industries, companies, and other facts that may have a bearing on the future of these companies. Their sole job is to make your money work and earn for you. The investment results of most funds leave little doubt as to the efficiency of such a system.

The second greatest advantage is diversification. By spreading your dollars over many companies and many industries, a weakness in one is hardly felt in the overall. Diversification minimizes the risk inherent in any investment.

Another advantage not available in other investments is the automatic reinvestment of dividends. Many funds make no sales charge at all for this service. This has the effect of quarterly compounding of your earnings.

Convenience is another advantage. When you invest through a mutual fund you have but ONE certificate, rather than dozens of regulations and problems, and involved record keeping. And you always know where you stand: Most investment companies send you a quarterly statement show-



by W. Mac Stewart
Vice president—Research,
Hamilton Management Corp.

If you have any questions concerning investment funds which you would like to see answered, either in this series or by mail, please write Financial Editor, Armed Forces Management Magazine, 1001 Vermont Ave., N.W., Washington 5, D.C.

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ing how many shares you own, the amount of your dividend, and other pertinent information. They usually send annual and semi-annual reports. And some send a statement at the end of the year to aid you in filling out your income tax form. Some funds offer a system of automatic payments by checks, drafts, or other means.

Marketability, of course, is a distinct advantage. Since investment companies must redeem your shares, you always have a ready market for shares you wish to liquidate. There's no waiting for a buyer. Shares are redeemed at their current net asset value, usually without charge. This may be more or less than you paid for them, but it's cash when you need it. Or if your need for cash is temporary, some sponsoring companies will loan you up to half the value of your certificate—some banks even more.

Mutual funds offer the same tax advantage on investment income dividends as do all corporate securities, with the first \$50 for each individual being tax exempt, and a slightly reduced rate on the remainder. However, all securities profits from funds are considered long term capital gains, only half of which is taxable. The capital growth—*increase in the value of shares*—is not taxable until the shares are liquidated, then that amount, too, is a long term capital gain.

Another advantage, of course, is the return. Since funds vary so in goals, investment policies, and portfolios, it is difficult to generalize on amount of return. However, consider this fact: Over the last 80 years all the industrial stocks on the N. Y. Exchange have averaged better than 8% per year—3% in capital growth and 5% in dividends. That includes good and not-so-good stocks alike, and that period covers wars and peace, booms and depressions. With careful selection and constant supervision, it is logical to assume that a mutual fund choosing stocks from among that group would fare even better—and most of them have. For example, some funds show a ten-year record, with dividends reinvested, of *five or six times* as much increase as would have come from the same money invested at 3% compounded semi-annually. Investors buy mutual fund shares not for a guaranteed return, but because they feel they have reasonable safety of their money, and their money has greater opportunity for growth and earnings than in a fixed income investment.

Comparison Misleading

You occasionally see articles in which someone attempts to compare various

mutual funds with each other. This can be quite misleading. Because funds differ so widely in their investment objectives, and their obligations and services to their shareholders, there are probably not two funds that are statistically comparable. Even the past record of a fund does not necessarily indicate what its future record will be. When you select a fund you want to be sure that its investment objectives are the same as yours, that you have the rights, privileges, and flexibilities you want, and be confident that you will continue to receive the same good professional management of your money in the years to come.

As we have pointed out in previous articles in this series, every investment has some degree of risk—either dollar risk or risk of reduced purchasing power of your capital. However, because of professional management and broad diversification, a mutual fund probably offers the best combination of protection against these two types of risks of any single investment you can make. Investment in a mutual fund is not a get-rich-quick scheme, as share prices fluctuate in general relation to market levels. However, if you invest in a fund strictly as a *long-term accumulation program*, you'll be pleased with the results. Many thousands of military men are now using this means of building toward the day when they will retire, and many more thousands will join them in the near future.

Ryan Firebee Achieves Record

The "champion" of all jet remote-controlled target drone missiles is the Ryan Firebee "Drone 1518," which has been parachute-recovered 14 times in the desert at Holloman Air Development Center, Alamogordo, New Mexico.

Holloman officers disclosed that the drone, which went into operation January 9, 1956, has averaged more than 40 minutes per flight, has streaked at high subsonic speeds for more than one hour on three of its 14 flights and operated at considerable distances from its ground control station.

The automatic parachute recovery system makes possible repeated use of the Firebee drone, for air-to-air or ground-to-air target practice, by lowering the jet missile gently to the ground. At Holloman ADC it is then retrieved by special truck equipped with crane apparatus.

When used by the Navy at coastal stations, the Firebee is parachute-dropped into the ocean and recovered by boat.

What's Wrong With Engineer Recruitment?

"Four out of five Engineer Recruitment dollars go out the window" says advertising agency. Reason? You've got to MOTIVATE them, not Recruit them. These findings are based on an Engineer-Scientist Motivation Study recently prepared by Petrik & Stephenson, Inc., Philadelphia advertising agency. The great welter of Engineer Recruitment display advertising in essence, is nothing more than a pumped up version of the classified ad that screams "ENGINEERS WANTED." The answer most times is "So what, who doesn't." The now classic statement "Engineers Are People" keynotes the Petrik & Stephenson approach "Motivate Engineers, Don't Recruit 'Em." Copies of the study are available from the agency.

Thor Guidance System Contract to AC

A \$38-million order for inertial guidance systems for Air Force ballistic missiles was announced recently by AC Spark Plug Division of General Motors.

W. E. Milner, manager of AC's operations in Milwaukee, said the order covers research, development and production. The systems are for the Air Force intermediate range ballistic missile "Thor."

The contract was placed by the Ballistic Missiles Office of Air Materiel Command, Inglewood, California.

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In this professional vacancy list published each month ARMED FORCES MANAGEMENT invites the listing of any position, GS-9 or above. This cut-off point was established on the basis that GS-9 and above positions entail as a major portion of the duties management responsibilities. Space limitations in this Department will preclude so-called "wholesale listings". Apply direct to the installation where the vacancy exists. For information about other jobs, write or visit the nearest military installation.

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Personnel Assistant GS-9

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Supervisory Personnel Off. GS-10
Production Control Spec. GS-11, 10, 9
Housing Management Off. GS-12

Guam

Materials Engineer GS-13
Electronics Engineer GS-12
General Engineer GS-12 2 vac.
Safety Program Spec. GS-10
Budget Specialist GS-9
Personnel Officer GS-9
Qualifications Examiner GS-9

WHITE SANDS PROVING GROUND New Mexico

Mechanical Engineer GS-11
Supervisory Electronic Spec. GS-9 2 vac.
Position Classifier GS-9

U.S. NAVAL AIR ROCKET TEST STATION Lake Denmark, Dover, N. J.

Aeronautical Rocket Power Plant Test Engineer GS-12, 11, 9
Electronic Engineer GS-11, 9
Civil Engineer GS-9

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Wage & Class. Spec. GS-11

BUREAU OF SHIPS, CODE 263R Department of the Navy Washington 25, D. C.

Hydraulic Systems Engr. GS-12
Welding Engineer GS-11
Systems Accountants GS-9, 10, 11

Title and Location Grade Remarks

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Position Classifier GS-10

U.S. NAVAL REPAIR FACILITY San Diego 36, Cal.

Supervisory Civil Engr. GS-11
Electrical Engineer GS-9

U.S. ARMY DISTRICT MOBILE Mobile, Alabama

Architect GS-11 3 vac.
Architect GS-9 2 vac.
Electrical Engineer GS-11 2 vac.
Electrical Engineer GS-9 3 vac.
Architectural Engineer (Specifications) GS-11 1 vac.
Structural Engineer GS-11 8 vac.
Structural Engineer GS-9 10 vac.
Civil Engineer (Roads & Runways) GS-11 1 vac.
Civil Engineer (Roads & Runways) GS-9 1 vac.
Mechanical Engineer (Heating & Ventilating) GS-11 4 vac.
Mechanical Engineer GS-9 2 vac.
Civil Engineer (Sanitary) GS-12 1 vac.
Civil Engineer (Sanitary) GS-11 1 vac.
Civil Engineer (Sanitary) GS-9 1 vac.
Architectural Engineer (Estimates) GS-11 1 vac.
Civil Engineer (Drafting) GS-11 2 vac.
Civil Engineer (Drafting) GS-9 3 vac.
Hydraulic Engineer (Project Development) GS-9 2 vac.
Hydraulic Engineer (Sedimentation Sec.) GS-9 1 vac.
Civil Engineer (Economics) GS-11 5 vac.
Landscape Architect GS-9 1 vac.
Hydraulic Engineer (Hydrology & Regulations) GS-9 1 vac.

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Physicist (General) GS-13
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Supervisory Electronic Engineer GS-12
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Statistician (Mathematical) GS-12
Physicist (General) GS-11
Physicist (Optics) GS-11
Fuze Design Engineer GS-11
Chemical Engineer GS-11
Structural Engineer GS-11
Construction Engineer GS-11
Ordnance Engineer GS-11
F. C. Design Engineer GS-11
Mechanical Engineer GS-11
Electronic Engineer GS-11
Electrical Engineer GS-11
Materials Engineer GS-11
Ammunition Design Engineer GS-11
Ordnance Design Engineer GS-11
Electronic Scientist GS-11
Metallurgist (Phy) GS-11
Structural Engineer GS-9
Industrial Engineer GS-9
Electronic Engineer GS-9
Gage Design Engineer GS-9
F. C. Design Engineer GS-9
Mechanical Engineer GS-9
Ordnance Design Engineer GS-9
Fuze Design Engineer GS-9
Ammunition Design Engineer GS-9
Chemical Engineer GS-9
Physicist (General) GS-9
Physicist (Mechanical) GS-9
Mycologist GS-9
Electronic Scientist GS-9
Psychologist (Physiological & Experimental) GS-9

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Management Analyst GS-9 2 vac.
Supervisory Electronic Processing Equipment Programmer GS-10
Supervisory Surplus Property Disposal Officer GS-10

Malmstrom AFB, Mont.

Electrical Engineer GS-11
Mechanical Engineer GS-11
Engineer (General) GS-9 Glasgow AFB 2 vac.

March AFB, Calif.

Mechanical Engineer GS-11

(Continued on page 48)

MATS 618S1: The New Look in Communications

By C. H. Page, JOC, USN

Chief, Information Services
Pac Div MATS, Parks AFB, Cal.

NOT TOO many years ago, no pilot in his right mind would think of taking off on a trans-Pacific flight without a top-notch radio operator in his crew.

Pilots wanted the best operators available, too . . . one of those kids who always had a copy of the Radio Amateur's Handbook in his pocket . . . one who was proud of his "fist" . . . who would forget about his in-flight lunch while he fiddled with the dials and knobs. They wanted the man who came back from every trip with tales on how he "worked Guam a hundred miles out," for this was the type that it took to maintain long-range contact on overwater flights.

But, like airplanes, air-ground communications have grown. We are now in the age of jets, electronics, and automation—the use of machines which "imitate the motions of men."

Such automation has provided technological unemployment for the once-in-great-demand radio operators of Pacific Division of the Military Air Transport Service. Heavy transport aircraft of PACD, such as the Boeing C-97 Stratofreighter and the Douglas C-124 Globemaster II, are now provided with equipment which "imitates the motions" of radiomen. As one result, there are almost no operators left in the Division. Those remaining serve as instructors, checking out pilots on procedures and operation of equipment. The others if they wished to continue airborne careers, were retrained as Load masters and Flight Traffic Specialists. The few who preferred static and dials to the Wild Blue Yonder ended up as ground operators with the Airways & Air Communications Service.

The equipment does not really imitate the motions. It does, however, accomplish the same thing when set to do so by the aircraft pilot who now handles all communications. The thing is properly called a Collins High Frequency Transceiver but aircrews and maintenance people generally refer to it more simply as the "Six Eighteen Ess One."

A very compact and very complicated system of electron tubes and tiny electric motors is the part that replaces the radio operator. The real heart of the system is a crystal. It permits radio waves of only one nar-

row frequency band to pass, so that the whole tuning system of tubes, motor-driven coil taps and inductance slugs keep hunting until they match the exact frequency of the crystal. This is what radio operators accomplished with their dials and knobs. Tuning automatically inside 618S1 takes from eight to forty-five seconds, averaging twenty; since the human operator had to do each thing separately, it took him a little longer.

For use in air-to-ground communications along global air routes, the Military Air Transport Service has been assigned 99 frequencies, all crystal controlled. Each of the new transceivers is equipped with these 99 crystals, and there is space for another 45 if special use is needed. The set is built so that by carrying along a "crystal bank," the pilot could operate on more than 500 such crystal controlled frequencies, if there were a necessity.

Pacific Division pilots, flying the wide Pacific Ocean, seldom use more than four or five channels, since most stations west of Hawaii operate on the same frequency. An alternate or "secondary" frequency is given the pilot at the route briefing, and he very seldom needs more. In case he should, a card that lists all MATS frequencies and their "channel designator" is pasted up in the plane's cockpit.

This channel designator is simply a letter and number combination that corresponds to one of the frequencies on the card. The pilot picks the combination he wants by turning knobs on the selector switch box.

Once the channel is chosen, all the pilot has to do is press his microphone button to start the tuning process. A red light on the control box blinks off after the tuning process is complete and the set is ready to transmit and receive. Once tuned, the pilot can maintain his radio contact until he needs to switch to another station.

Technical workers in the radio maintenance shops like the 618. The whole set is built in sections and they seldom have to remove more than two screws to lift out and bench-test a section at a time. These sections are interchangeable. Supply stocks them. It is easy to remove a malfunctioning section, replace it with a new one, and send the old one back for depot overhaul.

What of the radio operator who has spent so much of his time and

government money learning to do a job that he likes? Most of them, report PacDiv's training and personnel people, like the switch.

First of all, technical advances in equipment had reduced the number of high-rated radio operators used in airborne operation. As a result, there was a definite barrier to promotion. The displaced radio operators were given priority to enter training for Loadmaster—the new air-age technicians who supervise the loading, stowing, and unloading of cargo in monster transports such as the C-124—and the always-needed Flight Traffic Specialists. While re-training, the operators maintained their rate and pay until they had reached skill levels in their new trades which opened up previously-denied promotions.

Secondly, they were able to maintain their flying status, and could continue to "see the world" and draw flight pay.

Net result of the management technique of utilizing the latest and most improved "automated" equipment in MATS' Pacific Division was progress; greater efficiency in air operation through reduction of aircrew size, and better opportunity for the men displaced to earn promotion in other fields.

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Washington Management

■ **The Army's Research and Development** program has decisively moved out of the promise into the progress stage. So said Secretary of the Army **Wilber M. Brucker** in a recent appearance on Capitol Hill. Outlining the entire program during the past year to Senators considering the Army budget, Brucker said, "I'm sure you will be pleased to hear that the missile system, which we now call **Nike-Hercules**, has undergone tests and the results indicate performance has exceeded the design objectives."

■ **Major General William E. Hall** has replaced **Lt. Gen. Charles B. Stone** as commander of the **Continental Air Command**. Gen. Stone retired after 30 years with the Air Force. Hall was formerly assistant chief of staff for reserve forces at Air Force headquarters in Washington.

■ **Rear Admiral Charles C. Kirkpatrick** will become the **Chief of Information** of the Navy Department in November. **Admiral Kirkpatrick** is presently Chief of Staff to the Commander, United States Taiwan Defense Command.

New Mask Developed



■ An "Atomic Age" military protective mask, devoid of any outside canister, has been developed jointly by the **Army Chemical Corps** and **Mine Safety Appliances Company** of Pittsburgh.

The new **E-13** mask, which will protect the wearer from radioactive particles as well as a wide variety of war gases, is light, has no bulky parts, offers less resistance to breathing than former masks, offers increased vision, and gives the wearer increased speech transmission capabilities.

■ **William M. Holaday** has been placed in charge of both the nation's missile program and the **Vanguard** earth satellite project, reports **Defense Secretary Charles E. Wilson**. Holaday, a former deputy assistant secretary of defense, succeeds **E. V. Murphree**. The satellite is scheduled for launching during the **International Geophysical Year** which began July 1.

■ **The Navy Bureau of Ships** has announced acquisition of the **UNIVAC-LARC**, "fastest general purpose electronic digital computer designed." Costing some \$3.5 million, the **LARC** will have the capacity to do more than 100,000 multiplications each second, will duplicate in two minutes the lifetime work of a man using a standard desk calculator.

■ In a recent survey *Time* magazine discovered that the **Status-of-Forces Agreements** are working out well. Despite the international ruckus over the case of **William S. Girard**, the American soldier being tried in a Japanese court the agreements generally have contributed to six years of steady growth toward easing the tensions between allies.

One Girard case provides an uproar in the U.S. and Japan, for example, but 5,544 other U.S.-Japanese cases that came up last year worked out smoothly. Over a longer term, fewer than half a dozen out of 10,000 arrests of Americans in France since 1953 have caused the U.S. any concern.

■ A **Philadelphian** has been appointed to train Government and military administrators to be more creative.

Dr. B. B. Goldner, director, school of creative thinking, **La Salle college**, has been named staff consultant to the Federal Government to develop a course on creativity. Dr. Goldner will work with the United States Civil Service Commission and National Inventors Council to hold conferences for top level administrators in governmental departments and the armed services.

■ With the **August** fleet-wide examination, the Navy will consider the performance factor in the final multiple to determine rating advancement.

The performance score will be figured from the **Enlisted Performance Evaluation Sheets**. Highest possible performance will be 50 points. Maximum credit for other factors are: ex-

amination score, 80; total active service, 20; time in pay grade, 20; and awards, 10.

■ **The Air Force** has improved its pricing policy for **Cost Category III Materiel**, other than **Stock Fund** items.

Major features of the recent change provide for: less frequent price reviews on **Cost Category III** items (every two years instead of the previous annual requirement); and segregation of unit price changes into varying degrees of significance.

■ **(AFPS)** The Army is seeking 25 enlisted candidates for a second course of training in nuclear power plant operation starting at **Ft. Belvoir** about mid-January. Students will be schooled in plant operating and maintenance and to serve as supervisory or instructor cadre for future nuclear installations.

Applicants must be high school graduates in grade E-4 or higher who have at least four years to serve and are less than 35 years old.

■ The latest revision of **AFR 65-112** will save the **Air Force** time and money when implemented by commanders.

Under its provisions, contractors and AF activities will be notified in advance of the arrival of ferry crews so that aircraft will be ready when the crew arrives. This will tend to eliminate the time that ferry crews must spend waiting to ferry **USAF** aircraft.

■ **Lt. Gen. James M. Gavin** is eyeing a nuclear powered land vehicle.

The **Army Chief of Research and Development** made the statement before the **Senate Appropriations Committee**, outlining plans for **Army R & D** for next year.

The **Army** is also working on development of a flying jeep and an aerial assault vehicle equipped with rockets.

■ The first annual management awards were presented by the **Air Force Association** 31 July.

Four personnel of **Air Materiel Command** were among those accorded honors. **Vice Commander William F. McKee** received the top honor, the **Distinguished Management Award**. Other **AMC** winners included **Gordon Tyler** of **Mobile, Ala.**, **Air Materiel Area**, **Procurement and Production Management Award**; **Col. Joseph O. Fitzgerald** of **Oklahoma City**, **Supply Management Award**; and **Major Phillip G.**

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■ **Col. Richard E. Horner, USAFR**, has been nominated by **President Eisenhower** to be **Assistant Secretary of the Air Force for Research and Development**.

A career Air Force employee, **Horner** takes over the post he has held on an Acting basis since February, 1956, when **Trevor Gardner** resigned. The new Secretary has served the Air Force either as an officer or civilian employee since 1940.

■ **(AFPS)** The Air Force is probing the possibility of establishing a network of emergency landing fields for aircraft on coastal ice throughout the Arctic.

In tests conducted at **North Star Bay** near **Thule AB**, **Greenland**, **ARDC** has landed two **F-89 Scorpions**, two **KC-97 tankers** and a **60-ton C-124 Globemaster** on an "airfield" of ocean ice only four feet thick. Tests showed that neither the great weight of the aircraft nor the heat from the jet engines had any marked deteriorating effect on the floe.

■ **(AFPS)** The Army has extended for another year tests of the proposed **Military Pay Voucher System** being run at eight posts in the U.S.

Providing soldiers with a monthly itemized accounting of "across the table" pay, the new system has been on trial since 1956 at seven installations in the U.S. The system is designed to avoid misunderstandings and permit prompt adjustment of discrepancies.

■ "In the light of new developments in atomic warfare," the **Netherlands** is planning to reorganize its armed forces.

The country is adding extensive rocket-firing equipment to its fighter-bombers to build up air striking power. The **Dutch Army** plans, also, to put two instead of one combat-ready divisions in its standing establishment with **NATO**, equipped with the most modern U.S.-type weapons, including **Honest John** rockets which have a nuclear delivery capability. The Dutch decision to increase military expenditures when other nations in Western Europe, such as Britain, are cutting back, is bringing joy to the hearts of **NATO planners**.

■ In order to assure the development of an intermediate range ballistic missile at the earliest possible date, the **Secretary of Defense** has authorized the Army to continue for the time being the development of the **Jupiter** missile.

During the coming year, the Secretary reported to the Senators: "We will concentrate on developments in the field of missiles, target acquisition devices, faster and better communications systems, and mobility through aerial and ground vehicles."

"We intend to keep the Army fully effective in carrying out its ground and antiaircraft combat mission," he commented.

■ **A strong push** is on by the Army for the nation's top scientific and engineering men with the announcement of its **Project 200**.

The Army hopes to appoint 200 trained specialists as commissioned officers in the Regular Army by June 1958. These positions are open to any U.S. citizen who can complete 20 years of active service by his 55th birthday and meet the educational and experience requirements of the program. To qualify for the select 200 one must have a Doctor's Degree, a Master's Degree with three years' experience or a Bachelor's Degree with five years' experience in one of some 20 technical and engineering fields.

■ **Alarming reports** were heard recently from top military leaders, notably the **Air Force**, concerning the impact on combat readiness of continuing manpower losses.

The reports were voiced at the fifth annual **Secretaries Conference** at the **Marine Corps Schools**, **Quantico, Va.**

Disclosures at the Quantico sessions, such as loss of **SAC** crew readiness, may prompt proponents of a military pay adjustment to demand early hearings in Congress on pay bills they have sponsored. Testimony by **General Curtis E. LeMay**, Air Force Vice Chief of Staff, is certain to be heard. He has been insisting that outmoded military pay scales must be revised to safeguard military readiness.

■ The **Army Signal Corps** has developed a new portable radio facsimile set that can put a high-quality photo in the hands of a person miles away five minutes after the photographer shoots the picture.

Said to be the fastest known means of flashing a photograph from one spot to another, the new system can send vital military reconnaissance pictures by radio to **Command Headquarters** in time to affect a critical decision.

The equipment fits in the back of a radio-equipped jeep or car and can send a picture to its companion receiver 40 miles away. In addition it can flash a photo thousands of miles over standard telephone lines or around the world by means of long-range radio circuits.

■ The Army has initiated a foreign language proficiency program aimed at providing language training opportunities for all of its career officers who possess aptitudes along these lines.

The program will be conducted within the established DA budgetary limitations and since the capacity of the **Army Language School** is limited, its use will be on a controlled basis.

The **Adjutant General of the Army**, **Major General Herbert M. Jones**, in lending his support to the program, said, "U.S. Army officers are currently stationed in 73 countries of the world and experience has shown that the effectiveness of officers serving in these foreign countries is increased if they speak the native language."

■ **(AFPS)** Two elements of the **Pentomic division** will be tested in simulated atomic war this summer, the Army has announced.

Tests will consider air mobility and the ability of **Pentomic** units to occupy defensive positions under atomic attack. Plan of the exercises calls for the **Sixth Army** to defend **Las Vegas** against attacking forces. U.S. and aggressor units will fire simulated atomic weapons. The exercise is scheduled to begin **Aug. 19** and will last several days, the Army said.



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The Academy Role In Today's Air Force

By Maj. Gen. James E. Briggs
Superintendent,
U.S. Air Force Academy

IN THIS age of air power and nuclear energy, I know of no greater opportunity for service than that which is offered by lifetime careers in the Air Force. Our graduates, by doing their best to keep our people alive and free, will help to provide others with all the varied opportunities for service that make our lives worthwhile.

Along with the ideal of service, we

are trying to teach our cadets a very high order of discipline. This discipline must be consistent with American tradition. In order to defend the heritage of America, they give up voluntarily a portion of their personal freedom. This is the essence of a strong democracy.

To me, the discipline that is essential to a well-led Air Force is a very individualistic type of self-discipline. The individual must be part of the team, yet retain his individuality, his self-respect, his pride, his dash,

his will to fight when called upon to do so, and his moral ideas of leadership. Along with this he must keep his initiative and his independence of thought.

Today, a single officer may be called upon to carry out a mission which, in World War II, required crews of a thousand airplanes. That officer may have to press home his mission against heavy odds, with no American, or other friend, within thousands of miles to observe his conduct. If he has the will and the intelligence to carry out his mission, the self-discipline to drive himself into the danger, he has what it takes and what we are after.

In addition to discipline and the ideal of service, our graduates should, of course, have complete integrity. The fathers and mothers of America are entitled to such integrity in the men who will lead their sons, and the security of the country demands it.

To develop integrity, we adopted an honor code which the cadets themselves administer. It states that they will not lie, cheat, steal, nor tolerate among them those who do. The integrity which we try to instill must not be thought of as a four-year standard. If the officer does not carry it through life, we at the Air Force Academy have failed miserably. The cadets are proud of their Honor Code; one wrote recently that, if he were to leave the Academy with nothing more than a sense of honor, he would have gained something of priceless value.

Instruction Program

Our program of instruction is divided into two parts.

The academic program, under the Dean of Faculty, provides undergraduate study leading to a baccalaureate degree. It covers the sciences of the social humanities—and is similar to the curriculum of a civilian college.

We are trying to produce Air Force officers of outstanding quality, of both immediate and long range value. They may be called upon to serve in many different parts of the world under varied conditions and to advise on National Policy. Accordingly, our curriculum is tailored to give our cadets a broad, general education. It is neither a liberal arts curriculum nor an engineering curriculum. However, since our graduates will confront a

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Classes at the United States Air Force Academy are kept small, with ten to twelve in a class to permit a maximum of individual attention to each cadet. Each cadet is called upon to recite daily, and frequent examinations are given. Classes are composed of cadets making similar progress, so the more advanced are not held back. Here a class in history is in session.



United States Air Force Academy cadets graduate with the aeronautical rating of navigator. During the sophomore year they also receive an introduction to pilot training, which provides an incentive and a basis for development after graduation, when they will enter full-scale pilot training, if still physically qualified. All cadets make numerous flights in Convair T-29 navigational trainers, known as flying classrooms, and are taken on at least one flight each year in Lockheed T-33 jet trainers. In the scene above, an Air Training Officer (right) briefs a cadet just prior to take-off in a T-33.

diversity of intellectual problems, it has something of the character of both.

Our faculty compares favorably with those of other four-year colleges, both in teaching experience and in the level of their own education. Furthermore, its members have been selected not only for their excellent academic backgrounds but also for exceptional military backgrounds and qualities as Air Force officers.

In their academic studies we expect the cadets to acquire a knowledge of the world about them, an understanding of the people in that world, and skill in dealing with those people. In addition, the curriculum is designed to give them a thorough knowledge of mathematics and the fundamentals of the basic and engineering sciences, with emphasis on aeronautical subjects.

Airmanship Studies

The Academy's airmanship studies, supervised by the Commandant of Cadets, stress the basic concept of air power and air tactics. They acquaint the cadet also with the latest operational techniques of all the Armed Forces. Airmanship instruction is divided into three parts—military training, flying training, and physical training. The cadet becomes proficient in firing small arms and receives a full course in aerial navigation, including 171 hours in the air in navigational trainers. This provides a firm foundation for future specialization in various fields of manned or unmanned aircraft. In his sophomore summer he is given a two week's introduction to pilot training at a primary training school under the Air Training Command. He also is introduced to jet flight by rides in T-33 training planes. Upon graduation, he will be commissioned a second lieutenant in the Regular Air Force, receive the wings of a navigator and, if he has not become physically disqualified, he will then go on to full-scale pilot training.

Physical training is emphasized throughout the cadet's stay at the Academy, and participation in sports is required. This training is designed to develop physical fitness, leadership, recreational skills, the ability to instruct others in sports, and a keen and healthy competitive spirit. Those who play well enough, and who meet strict eligibility requirements, may participate in a wide variety of intercollegiate athletics.

The Academy is now operating at an interim site on Lowry Air Force Base in Denver, Colorado. The permanent site north of Colorado Springs consists of 17,500 acres of former ranch land. It includes ample space

for an airfield to support training in navigation. To the west, the Rocky Mountains provide a beautiful and inspiring background.

When completed, I am confident the Academy will be a national monument of which we all will be proud.

Small Classes

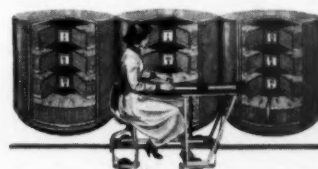
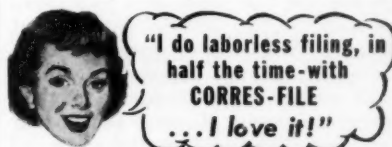
The Air Force Academy began with small classes, and, to limit their size while we are growing, Congress authorized a special selection system for us during our first four years. Under this system, 85 per cent of our cadets are chosen by the Air Force from young men nominated by members of Congress. Each United States Senator and Representative may nominate ten candidates, and nominees within each state compete for the vacancies allotted to that state. Additional candidates nominated from other sources compete for other vacancies. Final selections are made by the Air Force on the basis of competitive examinations.

Competitions opened for appointment to our fourth class of 300 cadets on July 1, 1957. To compete for these appointments, candidates must be able to pass the Air Force medical examination for flying training. Qualification and selection will be determined further by airmanship aptitude tests, physical aptitude tests, and College Entrance Examination Board Tests. Evidence of academic achievement, extra curricular activity, character, and leadership potential will be considered as well.

This temporary selection system permits the Academy to obtain cadets who represent the cream of a very large crop. It is up to us to prove the value of this system by administering it wisely, and an important part of our job is to inform the young men of the country of the opportunities that are open to them.

We offer them no easy road. The competition for appointments is stiff and life at the Academy is very far from being a snap. But the rewards will be beyond price.

● Installing strainers in one class of engines at the Naval Air Station, Seattle, Wash. is done with a tool developed by a station aircraft mechanic. The new tool replaced two costing \$340, and is estimated to save \$24 a month in manpower.



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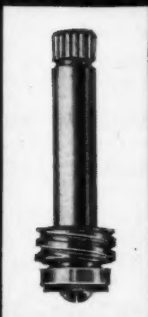
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Management Briefs from the Services

■ A two-month test period for the Army Command Management System is currently underway at Headquarters Area Command, U.S. Army Garrison, Germany.

It is expected that upon completion of the test and subsequent evaluation of data, ACMS will be implemented on a USAREUR-wide basis. The system will provide a commander and his staff with a single integrated method for management planning and control which will require a supervisor to place a dollar value on the work he programs and the resources used. The main purpose of ACMS is to act as a single reporting system for programming, budgeting, accounting, performance analysis and manpower control.

Remote Control Tractor Being Tested



■ A "robot" tractor that can be operated anywhere within range of the radio by which it is controlled is undergoing tests by the Army.

The tractor, believed to represent the first application of the remote control principle to a piece of construction equipment, may prove invaluable in construction work in radio activated and combat zones. It may also be useful in various other tasks, such as fighting large fuel storage fires.

From a jeep or helicopter equipped with a standard military radio transmitter and a special control box, the operator can start and stop the machine, engage and disengage the gears, operate in forward and reverse, manipulate the dozer blade up and down, and activate the steering mechanism.

■ (AFPS) Objectionable aircraft noise, an offspring of the jet age is under renewed attack by the Air Force.

The Air Research and Development Command has built a \$1,026,000 modern bio-acoustic research laboratory at its Wright Air Development Center, Dayton, Ohio, for the project.

ARDC scientists there will study the effects of high intensity noise on human beings. They plan to develop and improve noise projection equipment, to study methods of reducing noise and to cut down the harmful structural vibrations on aircraft caused by noise.

■ Two engineers employed at the U.S. Army Signal Engineering Laboratories, Fort Monmouth, N. J., received a record joint cash award of \$10,000 in ceremonies at the Pentagon recently.

The presentation was made by Secretary of the Army Wilber M. Brucker, to Stanislaus F. Danko, Neptune, N. J., and Moe Abramson, Long Branch, N. J. The sum represented the highest amount ever presented to Department of the Army civilian employees.

Mr. Danko and Mr. Abramson developed a process of automation known as "Auto-Semby" which it is estimated will save the government \$4,200,000 in the first year of operation.

"Auto-Semby" simplifies construction of electronic and electrical equipment which constitute a sizeable proportion of essential weapons, communications and control devices used by the Armed Forces.

The invention replaces the former slow, time consuming, skilled labor individual soldering technique.

■ The U.S.S. *Hermitage* (LSD 34) saved \$4,380 by obtaining unserviceable aircraft tires from Kessler Air Force Base. These tires were lashed on either side of well walls of the *Hermitage* for protection of landing craft entering and leaving the well.

■ Major Gen. Henry R. Spicer assumed command of the Crew Training Air Force, Randolph AFB, Tex., in July.

The former vice commander and chief of staff of the Air Training Command took over for Maj. Gen. Frank H. Robinson. Gen. Robinson has entered Randolph AFB hospital for treatment of a back injury received when his helicopter lost power and crashed at Randolph several months ago.

■ Designed to save millions of dollars while increasing the efficiency of the Army, "Project Paydirt" goes into high gear next month as a year-long effort to accelerate the Army's continuing suggestion program.

During the past five years military personnel and civilian employees' suggestions adopted by the Army have resulted in savings of \$74,290,000. For the fiscal year ended June 30, 1956, a total of 71,741 suggestions were submitted and savings from those adopted by the Army amounted to \$18,067,000.

■ The Air Force saved over \$2,771,178 recently, utilizing a suggestion that had to be coaxed out of the originator.

Dennis Moran, sheet metal inspector foreman, Tinker AFB, the "reluctant idea man," was awarded \$3,400 for a modification plan for the B-47 flap assembly. A change in design antiquated the assembly on earlier aircraft. Flaps on older aircraft were slated for replacement when Moran came up with a method of inserting extra ribs in the old flaps which would make them meet the new type parts specifications.

■ Tire changing time has been cut in half by personnel at the Naval Air Station, Willow Grove, Pa.

Using scrap lumber and metal during off-hours, they built a tire and wheel assembly. During one month 120 tires were changed at an average rate of 15 minutes compared to the previous rate of 30 minutes, saving \$68.10 in manpower.



■ With a hearty hand shake, Mr. Walter Helm (left) congratulates Coast Guard Seaman Sherwood R. Anderson upon the latter's receipt of the Treasury department's coveted Gold Life-Saving Medal. Anderson rescued Helm from a raging surf near the Coast Guard light station at Plum Island, Long Island, N. Y., a year and a half ago.

ARMED FORCES MANAGEMENT

Army's Launched Tested

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AUGUST



Army's New Bridge Launcher Successfully Tested by Manufacturer

Field movement of the Army's men and equipment will be getting a helping hand as soon as official go-ahead is given for production on a new mobile assault bridge launcher.

First production model was successfully demonstrated in Tulsa, Okla., recently by manufacturer Unit Rig &

Equipment Co. before top-ranking U.S. engineering and military personnel.

The machine consisting of an automatic hydraulic system mounted on an M-48 tank chassis (tank minus combat gear and turret) launches either a 40-foot or 60-foot aluminum bridge. Protected by armor and controlled by the tank driver, the launcher within minutes can lay down a bridge to move traffic up to 60 tons across ravines, tank traps or other troop deterrents at the rate of 300 vehicles an hour. The tank can retrieve the bridge from either end.

A substantial saving in money and manpower was reported by the Air Force recently.

Analysis of the first three months of its direct reservation system for the air movement of military personnel to overseas assignments has just been released.

Conservative estimates show 80,000 non-productive man-days were eliminated by using the new system to move 5,523 persons by air from the United States from January through March, 1957. The intangible benefits included the elimination of processing while in transit and better morale and travel accommodations.

Thirty of the 146 Naval shore activities submitting reports were awarded Certificates of Merit for their outstanding educational and training program in fire protection.

Coincident with the 1956 Fire Prevention Week campaign, the awards were accepted for the Navy Department by Garrison Norton, Assistant Secretary of the Navy (Air), from Percy Bugbee, general manager of the National Fire Protection Association.

Members of the 3502nd Flight Line Maintenance squadron, Reese AFB, laid claim recently to a record in enrollments in educational programs of ECI and USAFI.

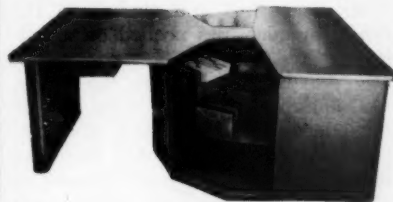
Records showed that 121 members of the squadron had enrolled in correspondence courses of ECI and USAFI during the past 60 days to give 59 per cent participation. The base education office reports the most popular course among the 121 seeking advancement through education was the aircraft jet engine mechanics course of ECI.

The Seattle Army Terminal received the National Safety Council's highest 1956 award in July.

Brig. Gen. C. F. Tank, commander of the U.S. Army Transportation Terminal Command, Pacific, presented NSC's "Award of Honor for Distinguished Service to Safety" to Seattle's Commander, Colonel John B. Grinstead. The award was based on improvement of the accident record in 1956 over that of the preceding two years. The Terminal reflected a 48.73 per cent improvement.



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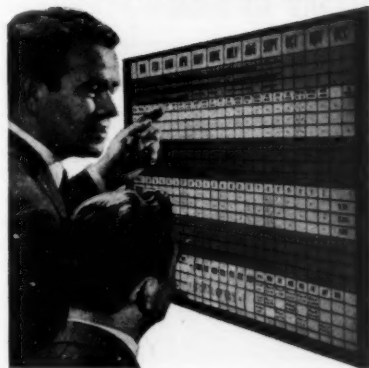
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■ **Camp LeJeune** is the most recent Marine base to install a Self-Service center in their supply operation.

Opened in July, the center permits authorized representatives designated by their commands to select stocked items from bins and shelves in the center in quantities needed on a self-service basis.

At the central exit from the center, the value of the stock selected will be totaled and charged against the commands' appropriation. Actual funds are not involved in the establishment of monetary credits and no proceeds are derived from the transactions. Financial statements will be prepared monthly to present the results of operation and status of the unit's accounts.

■ **The Army Antiaircraft Command**, with headquarters at Ent Air Force Base, Colorado Springs, Colorado, has been redesignated the U.S. Army Air Defense Command.

■ **The Air Force** has announced an awesome saving from its jet engine minor repair program.

During the past three years the minor repair of over 9,000 engines resulted in an estimated savings of nearly 23 million dollars. Main purpose of the program is to assist in obtaining maximum engine operating time for a minimum expenditure of time and money.

Automatic Navigator Details Revealed



■ **First details** of a unique system of automatic aerial navigation for high-speed jet planes were revealed recently by the U.S. Navy.

Quantity output of the "electronics intelligence" device, designated AN/APN-67, climaxes more than 10 years of intense research by Ryan Aeronautical company, under Navy auspices. All navigational information is reduced to visual display on a small instrument panel for use of the pilot and navigator with no need for manual computations. Not only does it tell the plane crew their exact location, but the plane is kept on course with precision.



■ **A SAC Welfare Fund** check for \$75 was presented to **Sergeant Eldridge**, Offutt AFB, Nebraska, recently. Sergeant Eldridge submitted a suggestion for the use of IBM card boxes in lieu of two drawer file cabinets for storing completed supply vouchers. This suggestion reduced the requirement for file cabinets by 50 at a total savings of \$441. Here Sgt. Eldridge transfers cards from files to boxes.

■ **(AFPS) Sun-generated** power is the latest innovation for the Army's revolutionary helmet radio transmitter-receiver for combat troops.

Experiments at the **Signal Engineering Laboratories**, Ft. Monmouth, N. J., have proved that solar batteries, which convert sunlight to electricity, are practical to operate the world's smallest set—the helmet-housed radio, according to the Army.

■ **Oscar P. Cleaver**, U.S. Army Research and Development Laboratories, Ft. Belvoir, Va., has been honored as the first Army employee chosen to attend the executive development program of Cornell University.

Chief of the Electrical Engineering Department at the Laboratories, he was one of 40 selected executives from business and government to attend the program which ended 27 July.

■ **The Department of the Army** has announced that the rays of the sun can supply the electrical power necessary to operate the instruments in an earth satellite.

Recent tests at **White Sands Proving Ground**, N. M., by Signal Corps engineers, proved that solar batteries may provide the ideal power source for satellite instrumentation because of their indefinite life.

■ **The Army** has successfully developed a new air defense missile system called the **Hawk**.

It reinforces the low-altitude capability of our air defenses and complements the **Nike** system's defense against high-level air attack.

■ **Military installations** in the Chicago area under jurisdiction of **The Quartermaster General** gave special emphasis in July to the **Army Incentive Awards Program**.

At the **Military Subsistence Supply Agency** cash awards totaling \$800 will be presented to employees cited for "sustained superior performance of duties." **MSSA** is the Department of Defense single-manager food procurement organization whose headquarters in Chicago this year will direct the purchase, storage, distribution and inspection of an estimated 700 million dollars of subsistence for all the Armed Forces.

According to **L. H. Kromrey**, Executive Secretary of the **MSSA** Incentive Awards activity, cash awards totaling \$3,400 went to 32 employees at the national headquarters and **Chicago Market Center** in the past 12 months. In comparison to a national average of 5.7 per cent in the **Quartermaster Corps**, 7.6 per cent of market-center employees have been successful in winning awards for suggestions, for superior performance, or for special services to the government.

■ **Dr. George H. Haas**, an internationally known physicist, has received his second "Outstanding" performance rating at the **Army Engineers' Research and Development Laboratories**, Ft. Belvoir, Va. He received his first award in 1954.

The brilliant German-born scientist's most recent contribution in a long list of achievements was the development of a final coating for the satellite to be used in "Project Vanguard" and supervision of its application at the Laboratories.

■ **The Meritorious Civilian Service** award, second highest honor that can be given civilians by the **Air Force**, was bestowed on two persons by **Maj. Gen. W. F. McKee**, vice commander of **Air Materiel Command**, recently.

Those honored were **Robert M. Watson** and **Frederick J. Grimm**. Both awards were for outstanding performance of duty.

Grimm's award was for his work as chief, **Administrative Management** division. He made substantial contributions to a pamphlet known as the "Blue Book" in **AMC** circles. This pamphlet concerns the organization and operation of Headquarters, **AMC**, and was the forerunner of similar pamphlets published by industries for their organizations.

Watson received his award for activities as chief, **Central Civilian Personnel** office.

ARMED FORCES MANAGEMENT

Wanted

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By Capt

1 "Managem Ralph J. Cord

AUGUST 1

Wanted:-

First Class Management

THERE IS considerable evidence of a changing appreciation of management's role in the life of an organization.

The tycoons who paraded across the business stage around the turn of the century would find considerable opposition today to their highhanded "public be damned" methods and practices. The new crop of business leaders has become increasingly aware that they "must manage their business in a way that is fair to everyone who is affected, making a contribution to the society of which they are a part."¹

Defense Department managers have also assumed increasingly greater responsibilities during the last several decades. Under the whiplash of World War II and the present cold war, our military leaders have widened their horizons far beyond the 1939 brand of strategy, tactics and logistics. The Communist struggle for world domination has made it necessary for those leaders to deal skillfully and meaningfully with tremendous budgets and logistic requirements as well as with fantastic technical and scientific advances that have been erupting all around us with breath-taking frequency.

Now, although subordinate managers—particularly those heading the thousands of small private businesses and small governmental organizations—have also advanced, their progress has appeared to have been somewhat slower. They have had to go it pretty much alone, whereas the managements of our large institutions—private and public—have had various kinds and amounts of management tools at their finger tips.

Our naval shipyards, for instance, have production planning and control programs, industrial engineers and comptroller departments working away day after day in order to achieve more efficient operations. Moreover, their military and civilian supervisors are a notch or two senior to those occupying comparable positions in our smaller Navy offices, such as our Supervisors of Shipbuilding and Inspectors of Naval material where there are gen-

erally fewer than 400 persons on the rolls.

Management Aids: The Budget

Nevertheless, many of the management assists which the larger Government and private organizations have at their disposal are also available to the managers of our smaller offices. One of those aids is the budget.

If each department head is required to prepare and justify his own annual budget and quarterly apportionments, cost consciousness becomes more widespread throughout an organization. More people get to know more about their jobs; staffing is kept more nearly in line with requirements; excess funds, should they develop, can be returned promptly to the parent organization, and analytical competence spreads to all segments of the activity. On the other hand, when a manager has his budget officer single-handedly prepare the activity's budget and then imposes increments of that budget upon his department heads, he lets a wonderful opportunity slip through his fingers.

Use a Training Program

A training program can be a terrific management aid to the smaller activity or it can be just another program—something an activity has because it is fashionable and because it must keep up with the corporate Joneses. An effective program requires a thorough appraisal of everyone's capabilities. It accords highest priority to individual, rather than mass training. It requires, in effect, many training programs. It requires study and effort but it enables employees to credit their training more specifically with better on-the-job performance, and with promotions. The returns are more concrete and immediate—not elusive dividends that are supposed to be received at some undetermined date in the future.

Monthly "head-of-department" reports can be very helpful. They should be brief, preferably one or two pages; they should highlight trends, hence comparison with past months is needed; they should describe any serious trouble areas that may not be under control and, this is important—they should include a description of all improvements effected during the month.

Department Heads worth their salt

will welcome the requirement and opportunity to report improvements.

Incentive Awards

A real stimulant to increased performance is the willingness and desire on management's part to reward meritorious service. Indifference in this very personal matter begets mediocrity, begets frustration, and what is worse, tags management "unfair." A powerful aid at the disposal of any management—large or small, public or private is a healthy incentive awards program.

Most of our smaller Government activities produce little or no actual hardware. Their principal commodity is service—service to the Government, and service to the private contractors with whom they deal. If those Government managers win the good will and respect of the private contractors and at the same time see to it that the Government's interests are always protected, they take giant steps toward improving the well-being of their organizations. And how do they do all this? Simply, by adhering to the golden rule—by giving the contractor prompt, courteous, equitable and firm treatment. Undue delays in inspections, settlement of claims, and any number of other services can throw him for a financial loss.

Courtesy is contagious. There must be an acknowledgement of the fact that the contractor is in business to make a profit, and the Government deserves a good product, delivered on time, and at a fair price. Using power of office to force acceptance of unequitable payments threatens a contractor's very existence. Contrariwise, appeasement and loss of initiative by a Government activity serve only to destroy respect.

There are many effective aids available to the managers of our smaller organizations. We have not mentioned them all. Forms and reports control, work measurement and work simplification are a few more which can be utilized. But they will not be discussed here; it is enough to acknowledge their existence. It is also well to acknowledge that none of them will be served to management on a silver platter. Hard work, fair play, and imagination are their price.

Whether an organization is large or small, management is essentially a trustee of its well-being. Management must preserve, protect and enhance that well-being or else give way to a new trustee. Management must go even farther—it must see to it that the good of the organization is not gained at an unequitable expense to society—or at a cost to our country's security. Those stakes are big. That's why "First Class Management" is needed.

By Captain M. H. Gluntz, USN

¹"Management Skills for a New Age"—
Ralph J. Cordiner, Pres., General Electric.

Assignment NIGHTMARE

■ A key to America's survival lies in the air defense system of the United States. East-West "disarmament" proposals are fashionable today, and are followed eagerly by a world anxious to put an end to the atomic threat and to the balance of terror existing between the two ideological camps. But the realities of the present demand other deterrents to any sudden war by the Soviets upon the United States. Air defense is, and will continue to be, a major deterrent, while other efforts are made to reach acceptable conditions for maintaining peace.

■ If Russia decided to attack the United States tomorrow, hundreds of heavy bombers, carrying nuclear bombs, would streak toward our target areas. Should these enemy raiders get through our air defense net, it is conceivable that well-placed Soviet bombs could kill one-fourth of the American people. Such a surprise attack could possibly destroy the nation's will to resist and its power to strike back. Air Force Commander General Twining has reminded us that "one grand-scale atomic blow by the Soviets on our industrial and population centers could be decisive."

TO PREVENT such a catastrophe, the Continental Air Defense Command (CONAD) has been given the mission to "defend the United States against air attack." This difficult objective can be accomplished only by preventing an attack in the first place, or by warding off or reducing to acceptable limits the impact of any enemy aerial attack.

Implicit in the mission is the responsibility of insuring America's ability to get up off the floor after the enemy's Sunday Punch and to fight back. A tremendous responsibility is assigned to CONAD. The fate of the United States and the values of western civilization will rest, to an uncomfortably large degree, on the shoulders of air defense leaders and their units on D-Day, Hell Hour, of World War III.

America today is committed to the belief that defense measures are not only practical in an era of nuclear warfare, but are absolutely essential for survival. In the moment of supreme crisis, the commander of the continental air defense forces, working in close cooperation with Canadian air defense units, would become a virtual dictator. He would have the power to direct the mass air battle over the continent, to declare air raid alerts, to ground all non-military aircraft to control all electromagnetic emissions within the country, and to make dozens of other decisions that would effect every individual. Possibly no other military person in America's history would ever wield so much power

as will be concentrated into his hands on that fateful day, should it come.

"No. 1 s.o.b."

The role of air defense leaders is not only of great significance in the security of the country, but it is fraught with irony. Should peaceful co-existence become possible between the two major conflicting ideologies in the world, or should one of the two major protagonists be overthrown without benefit of a "hot war," then the men who planned, built, manned, and assumed the great responsibilities of air defense may be known only to future military historians. The alternative to anonymity, however, is infinitely more disconcerting. Should these air defense leaders fail to blunt or halt a devastating air attack against the United States, some future primitive may carve on a high rock the name of the nation's "No. 1 s.o.b.," as one spokesman put it, the name of the man responsible for failing to protect the country against its enemies.

The establishment of a post-World War II air defense system first received attention in 1946. By that time, the United States Air Force had recognized, as had the government, that the Soviet Union would most likely be our opponent in any third world war. It was apparent that once Russia discovered the secret of the atomic bomb, built up a stockpile of such weapons, and developed carriers to deliver them she would be able to attack and destroy virtually any part of the United States from bases along the Soviet polar periphery. It seemed probable that Russia would not hesitate to deliver an undeclared attack, should she ever consider the chances of victory to be favorable.

The path of air defense planners

has been an uphill climb. They have had to battle the widely held shibboleth that the best defense is an overpowering offense. A powerful strategic bomber force, capable of massive retaliation through its ability to deliver immediately nuclear bombs against the enemy, has generally been accepted as America's major deterrent to any offensive action against the country. Only recently has the United States come to accept the fact that air defense forces are a necessary part of a peacetime combat force strong enough to fight and win, in the event of a lightning war.

Rude Awakening

The Air Force went ahead to establish an active air defense net from 1946-1950, despite insufficient support from Congress and public apathy. Boosts to air defense were not long in coming. In 1949 the explosion of the first atom bomb by the Soviets, several years in advance of predictions, rudely awakened the American public to its danger. So did the outbreak of the Korean War, and Chinese intervention. The necessity of defending strategic bomber bases from surprise attack became apparent; with these bases destroyed in a sudden raid, the United States would be doomed to surrender or destruction.

The men responsible for operating the defensive network that gradually emerged during the past decade have had to determine how the United States could best be defended against Russian air attack. In so doing, they have, of necessity, taken a number of calculated risks. It was assumed that the Soviets would strike first at areas of primary concern to America's strength: industrial, population, and government centers; bases of the strategic bomber force; and atomic research and development installations. A cursory glance at a map is sufficient to locate the basic American target complexes in the northeast, on the west coast, and in the Great Lakes region. With these probable target areas to protect, air defense planners have oriented their forces against the probable Arctic approach routes the enemy might use for converging on these targets.

The deployment of air defense forces could be resolved in one of two ways. Units could be placed in small detachments over a large area, in order to offer some measure of protection to every target in the country, or they could be concentrated in a few areas of strategic importance to stop a mass raid. Defensive forces would never be sufficient to support a defense of maxi-

By Dr. George L. Montagno

Directorate of Historical Services
Continental Air Defense Command HQ
Ent Air Force Base

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mum intensity for the whole of the United States. Nor would it be economically feasible to attempt this type of air defense. With political pressures raised to defend certain areas, possibly at the expense of others, the situation has been touchy indeed.

Time is Primary

Of primary importance to air defense forces is the matter of time. How much warning would they have in the face of impending attack? Long range intelligence, operating behind the Iron Curtain, would be able to detect the extensive preparations and movement necessary to a large scale air attack. The hope exists that intelligence can make this information available in sufficient time for it to be of immense value to the air defense system, the strategic bomber force, and to the civilian defense of the United States. However, an enemy raid of lesser magnitude could be prepared in secrecy, and without detection. With perhaps 100 bombers, each capable of carrying a nuclear weapon, such a raid, if well organized, could cause inestimable damage through destructive nuclear blast and far flung radioactive fall-out.

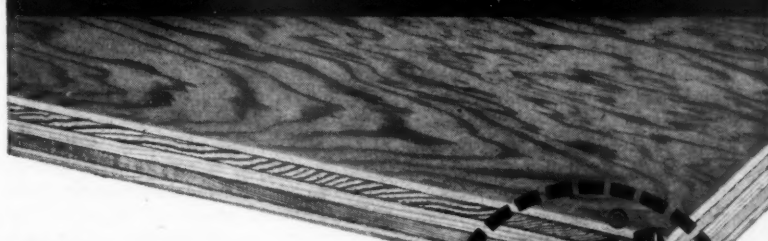
In the light of this possibility, air defense planners must prepare against an attack that will come without any warning other than that picked up by their own early warning radar net. This net has gradually been extended northward into Canada, and seaward into the Atlantic and Pacific to guard against any flanking attack by enemy raiders. It has not been comforting to these men to think in terms of several hours of warning, in which they must speed up our defenses, alert the nation's offensive air force, and warn the civilian population of the impending nightmarish attack.

To cope with the attack, whenever it might come, the planners have the task of constructing an air-defense-in-being. The problem is simple: to build a defensive net capable of stopping the type of attack the enemy might choose to initiate at any time. Air defense must always have a capability equal to the demands placed upon it.

Solution Difficult

The solution to the problem is difficult. It means that the air defense system has to stay in a state of flux in order to keep ahead, or at least remain on an even par, with Soviet attacking capabilities at any given moment. The United States has only partial intelligence of Russia's present capabilities, and limited knowledge of her future plans. The rapidity with which the Russians developed the

FIR PLYWOOD PURCHASING GUIDE



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2. Choose the right grade for each job

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Within each type are *appearance grades* to meet the exact needs of any given job. Most popular grades are shown below: (other grades including panels made of other western softwoods, also available)

TYPICAL USE	EXTERIOR-TYPE (Waterproof glue)	INTERIOR-TYPE (Moisture-resistant glue)
Where appearance of both sides important. Cabinet doors, single thickness walls, etc.	EXT-DFPA-A-A	INTERIOR-A-A-DFPA
Where only one side will be seen. Siding, paneling, signs, fixtures.	PlyShield® (A-C)	PlyPanel® (A-D)
Special concrete form grades. Both faces sound, solid, smooth.	Ext. PlyForm® (B-B) Maximum Re-use	Int. PlyForm® (B-B) Multiple Re-use
Unsanded structural and maintenance panel. Sheathing, crating, temporary screening.	Exterior Glue PlyScord® (C-D)	PlyScord® (C-D)

SIZES: Standard fir plywood thicknesses are from 1/4" through 3/4"; standard size is 4' wide, 8' long. Other thicknesses and sizes are also available, including "king-size" scarfed panels up to 30' and 50' long.

TEXTURED FIR PLYWOOD — Fir plywood comes in several smart textured panels for special decorative applications such as siding, paneling, displays and fixtures. These include *Texture One-Eleven* Exterior plywood (deep parallel groove pattern, shiplapped edges) and panels with attractive *brushed, striated, or embossed* surfaces.

OVERLAID FIR PLYWOOD — is Exterior fir plywood with resin-fiber overlay permanently fused to one or both sides of panel. *High density* is hard, glossy, abrasion-resistant (use for long-lasting signs, shelving, concrete forms); *Medium density* overlaid plywood is smooth, with texture similar to drawing paper (ideal paint base for signs, fixtures, siding).



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A-bomb in 1949, and their display of high-altitude, intercontinental jet bombers powered by turbo-prop engines in 1954, are indications of a resourceful enemy. Despite Soviet inexperience with strategic air warfare, it is necessary to assume that they can, if they choose, do quite well in air offense.

Because of the long time involved in preparing defenses, future effectiveness depends on the air defense planners of today. Their assumptions and use of intelligence information determine our course of action. Only if their guesses prove to be accurate, and only if steps are taken to prepare proper defensive measures, can the nation survive, to some degree, in time of a "hot war." Who would willingly accept this responsibility? The problem has been characterized from the first by our lack of knowledge of the enemy's potential.

The need is to second guess Kremlin planners rather than to outguess them. It is they who are able to select the time and place for the attack, and to deliver the first blow. Obviously they have great flexibility in choosing the time and axis for attack at our Achilles heel—or what they conceive that heel to be.

Thousands of Problems

Air defense planners also must cope with thousands of disturbing day-to-day problems. How can good community relations be maintained with municipalities, when air defense jet aircraft create noise problems and flying hazards? Is it possible to recruit and sustain the enrollment of Crown Observer Corps members all over the country. It is known that these volunteer, skywatching GOC members are indispensable in filling gaps in the radar net and in guarding against low-level enemy air attacks. But will patience stand the strain and stress of 24-hour guarding against an attack that might never come?

What of public apathy when the Soviets undertake one of their periodic "peace campaigns?" How should the air defense leaders act in the face of possible cuts in Congressional appropriations, either to placate public opinion or to insure the stability of the nation's economy? In the name of "economic security," it has become customary to decry the supposedly wasteful, increasingly costly military appropriations that may run down the national economy. Yet, air defense costs are steadily mounting, and greater appropriations will be needed if we are to meet the possible Soviet challenge of tomorrow. In reality, the question is not whether the nation can

afford air defense in a nuclear age—but can the nation afford to be without such a system?

The operational concerns of air defense leaders are in themselves legion. How can radars be kept turning, all-weather interceptors be kept flying, and personnel trained properly for the intricate, fast-moving electronic and nuclear war of tomorrow? It is true that the resources of the Air Force, Navy, and Army Antiaircraft Artillery that stand behind the facade of the Continental Air Defense Command are prodigious. How can they best be used to achieve maximum security for the nation in an era of high altitude, high speed aerial warfare? Defensive measures must be radically improved to assure our national survival beyond the initial attack, for the destructiveness of nuclear weapons has caused major revisions in the tactics and techniques of air battle.

In addition to building up the air defense forces quantitatively, the qualitative goals have been hard to attain. Providing our defenses with weapons that will prove superior to offensive weapons in speed, altitude, and fire power, along with the skill to operate these weapons proficiently, is a tremendous assignment.

Skill not enough

Skilled units, however well equipped, are not sufficient to meet the challenge of year in, year out, 24-hour vigilance demanded by air defense. Radar operators watching radar scopes for enemy blips, fighter pilots sitting tensely on scramble alert, and GOC housewives scanning the sky for unidentified aircraft, all have need of one other ingredient: a sense of mission. These men and women cannot afford to relax or to forget that the next unidentified aircraft intercepted by radar controller-fighter interceptor teams may well be the one that left a Russian airfield with American destruction as its goal. It will be necessary for the American people in general—and for air defense forces in particular—to have a large amount of fortitude if and when Russian leaders are ever so impolitic as to forget, or ignore, the dictum that there is no longer any alternative to peace.

The men responsible for the performance of air defense forces, should D-Day and H-Hour ever come again, can take little comfort in the thought that no margin for error is permissible when their units meet the acid test of defense. Because of many variables concerned with questions of time, type, and magnitude of attack, it is virtually impossible to predict the rate of attrition that might be inflicted on

Soviet bombers seeking to attack the United States. Consequently, there is really no effective way of judging the capacity of air defense forces until these forces are called on to face the enemy in sudden mass air battle. And then, there will be little—if any—time for post-mortem of air defense planning.

General Benjamin W. Chidlaw, former CONAD commander, well summed up the situation when he noted that if the air defense forces succeed in meeting their test, the nation lives—if they fail, the nation dies. This thought alone is sobering.

New Ideas:

Army Depot Saves With Tire Device

Reported by: Ordnance Supply section, Columbus General Depot

Improvement: Tire Turning Device.

Program Affected: Supply distribution and maintenance—Program No. 9

Background: This section has had, for many years, a reserve storage mission, which included vast quantities of pneumatic tires. Since the building and maintaining of wooden tire crates to hold the larger size tires was very costly, many of the larger sizes were stored horizontally on pallets. This method of storage required that casings be reversed in storage semi-annually to prevent distortion.

Before Improvement: Casings were reversed by using two forklifts and a crew of three to four men. Each tire had to be handled individually during the reversal process. The average cost per ton of tires handled in this manner was .716 manhours per ton or \$1.43 per ton. During 1956 this section reversed 15,790 tons of tire casings, which based on the foregoing figures, cost \$22,579.70.

After Improvement: After much study, an attachment for a forklift was devised which would remove from present stacks eight or more casings at one time, reverse them, and return them to the stacks. This eliminated one forklift and two men needed previously. Cost figures for five months, November 1956 through February 1957, have indicated that through the use of this attachment casings can be reversed at an expenditure of .37 manhours per ton, or \$.74 per ton.

Gains: Use of the attachment enables doing the job quicker, more neatly, and with less people, saves 5,463 manhours and \$10,895 a year, approximately.

Management Techniques Used: Motion Study.

ARMED FORCES MANAGEMENT

Laws

Several from the legislative session. found the could have sion.

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AUGUST

On Capitol Hill

Several sound ideas have traveled from the Pentagon to Capitol Hill as legislative proposals during the last session. Too many important ones found the road more bumpy than they could handle in one Congressional session.

Excluding budget appropriations, the biggest hassle, and most unfortunate results, were reserved for the Cordiner Committee recommendations. Budget Director Brundage vetoed the majority of the recommendations, arguing they would exert unfavorable inflationary pressures on the economy. Mr. Cordiner took direct issue with him, saying the effect would, if anything, be just the opposite. For the time being, however, that appears to be that.

Secretary of Defense Wilson has stated that further study and developments of the overall Cordiner Committee program will be made a major Defense Department undertaking, guided by William H. Francis, Jr., assistant secretary of defense for manpower, personnel and reserve. Wilson has also indicated that an attempt will be made, as he put it, to "understand the temper of Congress," prelude, presumably, to trying again at the next session.

In the meantime two actions appear to be all that can be taken to implement Cordiner recommendations at present. Action has been started to obtain "term retention contracts" for reserve officers and to provide "proficiency pay" for enlisted personnel. Some improvement in the personnel situation within all three armed services in these two areas also may be expected. In addition, their implementation will give the DOD an opportunity to gain experience in the type of personnel procedures recommended by Cordiner.

The term retention plan for reserve officers is designed primarily to encourage selected young reserve officers to remain on active duty after their normal three-year obligated term of service for a further limited period of time. One of the factors contributing toward reserve officers leaving the service, after the initial obligated tour of duty, was the fact that such officer had no assurance of continued employment until eligible for retirement. The proposed plan authorizes the extension of contracts of two or more years' duration to reserve officers with at least two years active

commissioned service, and provides "term retention pay" in the amount of two month's pay for each year of contract service up to a maximum of two years pay.

This plan passed the Budget Bureau, probably because it contains no retroactive features and no costs accrue until fiscal year 1960. If and when implemented, the plan should help a great deal in wiping out the present short supply of armed services officers in the three to twelve year service bracket.

Proficiency pay for selected enlisted personnel, the other plan receiving action, utilizes the fact that enlisted pay grades are not based on enlisted rank. Thus, administrative action is possible to increase the pay of selected enlisted personnel without promoting such persons in rank.

The Armed services are expected to give "proficiency pay" to approximately 15% of their enlisted strengths. Individuals selected because of proficiency or special technical skill will be paid at a rate one or two grades above their military rank. The services concerned will make their own selections of who is to receive the increase.

The bill for the first year of operation will probably run \$49-million, divided approximately: Army, \$11-million; Navy, \$15-million; Air Force, \$19-million; Marine Corps, \$4-million. The several services plan to absorb the cost in their presently proposed '58 budgets, primarily because they believe its use will enable retaining increased numbers of trained personnel. This will make possible savings both in personnel turnover and in the training establishment.

The Cordiner recommendations as a whole are getting, generally, an "it's-a-fine-idea-but—" treatment. Monday morning quarterbacks to the contrary, the recommendations have stood up well under debate thus far. Certainly, they are the only reasonable solution in sight for the manpower problem of the armed services—a problem, incidentally, which is growing acute both in civilian and military requirements. This is not solely our own opinion. Such military leaders as Air Force Vice Chief of Staff LeMay and Chief of Naval Operations Arleigh Burke said it first.

It is hoped that the Bureau of the Budget will see its way clear to approve further provisions for legislative

implementation at an early date. If the proposals are sound, and we think they are, then any opponents are standing in the way of legislative action designed in the long run to save hundreds of millions of dollars and possibly result, eventually, in an elimination of the draft. If, and it's a big "If", they can be convinced of this, the proposals should have easy sledding.

Other Legislation Pending

Several bills have been introduced recently in Congress, of greater or lesser importance, all of them still waiting a vote as of press time. Among them:

1—An amendment to the Air Commerce Act of 1926 authorizing the sale at government airports of supplies & services to other than U.S. Government aircraft.

2—An Army-instigated bill to provide for the establishment and maintenance of industrial facilities.

3—A Navy-promoted bill to improve the opportunity for promotion of naval officers.

The Bureau of the Budget is mulling over several more proposals. They include:

1—An Army request to authorize sale of the Alaska Communications System to private ownership.

2—An Air Force request to authorize medical and hospital care at military facilities for persons other than members of the Armed Forces or their dependents.

3—A Navy plan to permit employment in civil service positions of retired officers under certain conditions.



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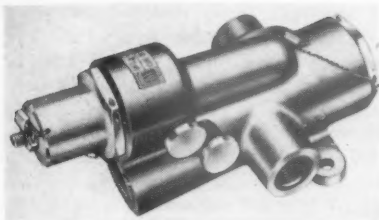
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For more facts request No. 35 on reply card

NEW Dollar-Saving Products

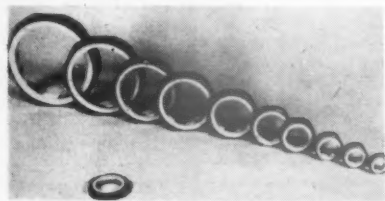
Pressure Reducer



Weston Hydraulics, Ltd. The new Weston pneumatic pressure reducer (see cut) gives you up to 1000 SCFM at 1.87 lbs. Weston reducers feature close control of outlet pressure over a wide range of inlet pressures and outlet flows. Performance exceeds the requirements of specification MIL-R-8572A (Aer.). Designs are also available with flow capacities up to 2000 SCFM.

For more facts request No. 1 on reply card.

New Pipe Sealer



Flick-Reedy Corp. This firm's new pipe sealing device (see cut) is now more corrosion resistant, more compact. New chromated cadmium surface treatment gives the nut-like Tru-Seal fitting its golden color and great resistance to corrosion. Cropped edges make the fitting more compact and prevent over-tightening since there is less area for the wrench to grip. Available in pipe thread sizes from 1/8-inch through 2 1/2 inches.

For more facts request No. 2 on reply card.

All-Purpose Voicewriter



Thomas Edison Ind. A new dictating machine, perhaps the most unusual communications device ever marketed, according to the company, is now being produced. The Edison people call it the All-Purpose Voicewriter, claiming "it does practically everything but think." One all-purpose unit (see cut) can handle many kinds of work simply by plugging different sets of accessories into it; can handle remote telephone dictation, dictation at desk, conference, or at home, and can transcribe for typing.

For more facts request No. 8 on reply card.

Core Tester

Radio Corporation of America. An automatic Ferrite Memory Core Tester, a high-speed combination electronic and mechanical test instrument that drastically reduces core test time and improves testing accuracy, was announced recently by the RCA Components Division. Says RCA, "The Automatic Tester's ability to test, select and reject cores according to customer specifications three times as fast as was formerly possible with most semi-automatic devices, means immediate end-product cost reduction.

For more facts request No. 4 on reply card.

Safety Tape Cleaner

Tect, Inc. Development of a new safety solvent for cleaning magnetic tape has been announced by this firm. TECSOLV No. 928 is exceedingly low in toxicity, has no flash point, and shows no more action on the magnetic oxides than the dangerously toxic carbon tetrachloride which it replaces. It is available in containers as small as a half-pint to 55-gal. drums.

For more facts request No. 5 on reply card.

Remote Control System



Magnetic Research Corp. The Servo Systems department of this firm is producing complete magnetic servo systems for such military purposes as remote indication, measurement, recording and control. Produced for fuel rate and temperature control, one system features two channels on a single chassis. Because the systems are built with all-magnetic components (see cut), they are rugged, compact, fast in response, and capable of a strong accurate output signal.

For more facts request No. 6 on reply card.

Investments

Hamilton Management Corp. Through Hamilton Funds, Inc., a managed common stock investment fund, this firm offers lump sum or monthly investment plans to fit any budget. Interested persons can inquire without obligation. Firm recently declared another quarterly dividend.

For more facts request No. 7 on reply card.

ARMED FORCES MANAGEMENT

How to Use Armed Forces Management's Library—

Inserted in this issue, a postage free card is provided for your convenience in requesting descriptive and informative literature. This will be forwarded to you, without obligation. Many cost saving ideas are generated by Operating Departments that have referenced information on products available. Purchasing Officials will find this type of information invaluable. All that need be done is: fill in name and address, circle that which will assist you, and mail. Claims presented are those of the supplier and not necessarily of this publication.

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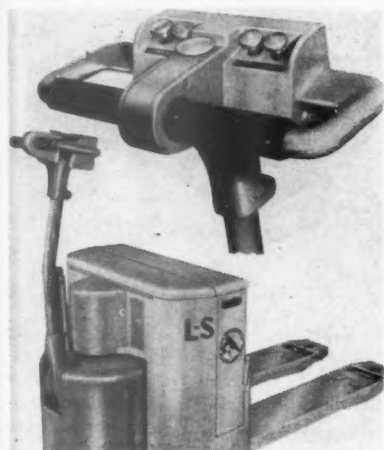
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New "Walkie" Control



Lewis-Shepard Products, Inc. The first control system (see cut) for "walkie" electric trucks offering both "dynamic braking" and "controlled plugging" is now available on L-S's complete "walkie" line. Designated the L-S Roto-Cam Control, it is offered as standard equipment on all Lewis-Shepard high-lift and low-lift "walkies." With this control, the truck will come to a smooth stop and then pick up speed in the opposite direction when the control grip is reversed. Wear and tear on the truck's motor is thereby reduced.

For more facts request No. 8 on reply card.

Four-Test Unit



Radio Frequency Laboratories, Inc. The model 1051 C-R-A-M unit is a versatile new instrument combining four separate test functions in one unit (see cut). This unit is designed for use as: (1) a secondary frequency standard of 0.0005% accuracy, (2) for the reception of standard time and frequency broadcasts from WWV, (3) as a moderate gain audio amplifier for general use, and (4) as a mixer to compare two external signals to each other or to compare one external signal to one of the harmonics or subharmonics of its 10MC crystal oscillator.

For more facts request No. 9 on reply card.

Front-end Loader

Wain-Roy Corp. The Anderson model D3D front-end loader features bucket roll back at ground level to assure full load and low carrying position for operator safety, hydraulic shock cushion preventing material spillage, bumper to bucket reach assuring full loading of average trucks—even with high sides.

For more facts request No. 10 on reply card.

Lighted Switch

Minneapolis-Honeywell Regulator Co. A new space-saving lighted push-button switch is being marketed by Micro Switch division. The new switch can be mounted on one-inch centers, both horizontally and vertically, and requires only 2 1/4 inches below its mounting panel. It has snap-action and comparatively high force differential, which helps prevent accidental actuations. By combining indicator light and switch in one compact assembly, the units cut panel space requirements in half.

For more facts request No. 11 on reply card.

Air-powered Stapler

The Staplex Co. A new air-powered stapling machine has just been announced by this firm. The Air-Stapler, known as Model SA-100, is equipped with a three-way air switch valve for either foot, knee or hand operation, can perform a variety of fastening jobs such as stapling bags, material, paper, forms and many others.

For more facts request No. 12 on reply card.

New Bulletin

Vickers, Inc. A new bulletin (No. A-5216) describing hydraulic pumps and motors, motorpumps and hydraulic packages miniaturized especially for missile applications has just been published by this firm. Two series of constant displacement piston type pumps are shown, some of which can deliver more than five horsepower per pound of weight.

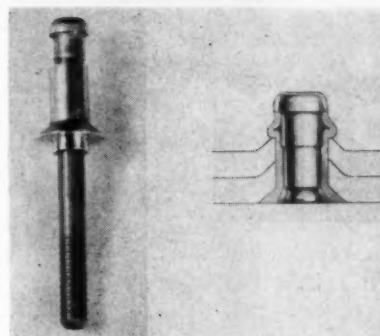
For more facts request No. 13 on reply card.

High Voltage Capacitors

U.S. Electronics Development Corp. Ranging from 600 to 50,000 volts and from .0001 to .5 mfd. U.S. Edcor's new line of high voltage plastic capacitors is now in full production. Feature of the line is the new "Glass-kase" hermetically sealed glass case. High voltage capacitors are also available in CP-70 cans or in enclosures made to customer specifications.

For more facts request No. 14 on reply card.

Blind Rivets Insure Hole Filling



Huck Manufacturing Co. A new oversize-diameter design has been added to the line of Conical Keystone Lock (CKL) blind rivets produced by this firm. The new rivets are made 1/64-in. oversize on diameter to insure hole filling and produce a good tight installation in dimpled sheets. They are available with countersunk head style (see cut) in a wide variety of sizes.

For more facts request No. 15 on reply card.

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For more facts request No. 30 on reply card.

Eye First Aid



Haws Drinking Faucet Co. A portable emergency eye-wash fountain (see cut), for instant eye first-aid where normal water supplies are unavailable is now in manufacture. Model 8950 is the latest addition to Haws' line of emergency facilities which includes eye and face wash fountains, drench showers and numerous model variations. It is designed for use by construction crews, chemical crews—any group working in remote areas where water is non-existent.

For more facts request No. 16 on reply card.

Turbine Test Gear

Bendix Aviation Corp. A new "module" type of gas turbine fuel control test equipment for sale to aircraft mfg. and overhaul organizations is announced by Bendix Products division. This new test stand provides separate areas for the operator and instrumentation, the electrical units and the fuel handling equipment. Each of these groups are mounted in a separate area in such a manner that noise, fumes and certain hazards connected with this type of equipment are separated in each section.

For more facts request No. 17 on reply card.

New Calculator



Monroe Calculating Machine Co. A completely re-styled, three-register accounting machine has been announced by this firm. Along with a radical departure in design and appearance from its predecessors, the President (see cut), or B Series machine, offers several exclusive time-saving features including a simplified error correction device.

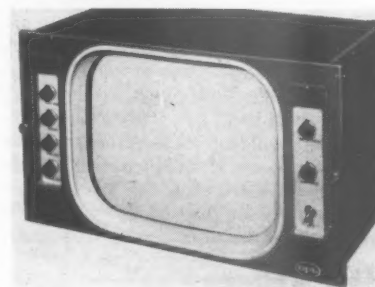
For more facts request No. 18 on reply card.

High Frequency Transformers

Superior Electric Co. Powerstat variable transformers which deliver a continuously-adjustable voltage from a-c power lines are now available in several series of a new standard line for high frequency applications. Designed for single and three phase, 400/800 cycle operation, manual and motor-driven air-cooled models are offered for 28, 120, 240, and 480 volt service in ratings from 56 VA to 8.7KVA.

For more facts request No. 19 on reply card.

TV Monitors



General Precision Laboratory, Inc. A new line of video monitors incorporating a number of advanced features is now available. The units (see cut) provide bright, clear, high definition pictures for broadcast station or industrial and institutional television picture presentation with closed circuit systems. In both cabinet and rack mounted versions, the monitors are designed for continuous duty operation with minimum maintenance.

For more facts request No. 20 on reply card.

Private Radiophone



Motorola, Inc. This firm's private line radiophone (see cut) is now extended to the 450-470 mc. frequency band. Equipment is designed to literally "shut out" all communications other than those originated within the same closed system.

For more facts request No. 21 on reply card.

10,000-lb. Capacity Lift Truck



Allis-Chalmers Mfg. Co. Production has started at this firm's Harvey, Ill., plant on a new 10,000-lb. capacity lift truck, the FT-100. This new truck is designed for heavy-duty work characteristic of factories, warehouses, stevedoring (see cut). The FT-100 has a 230 cu. in. Allis-Chalmers engine, available in Diesel, gasoline or LP gas fuel models; a heavy-duty, welded industrial-type frame that means long life and low maintenance.

For more facts request No. 22 on reply card.

Belco Replacement Faucet Stems

Miller Manufacturing Company. Leaking compression-type faucets, lost water and excessive maintenance costs are gone forever with the installation of Belco ball bearing replacement stems, complete with bibb washers. The bibb washer is only under compression and is not subject to cutting or grinding action.

For more facts request No. 23 on reply card.

ARMED FORCES MANAGEMENT

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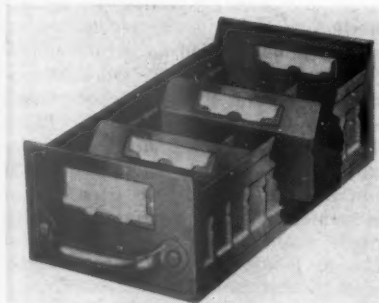
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AUGUST

New Design Steel Drawers



Equipto Div., Aurora Eqpt. Co. This firm announces new design refinements in its line of steel drawers. Drawers (see cut) are not embossed to engage notches in the cross divider, thus locking dividers in place. This prevents dividers from creeping up and keeps tiny parts separated, yet divider may be removed easily. Free booklet No. 206 illustrating and describing all units from 2 to 144 drawers is available free.

For more facts request No. 24 on reply card.

Wide-band Amplifier



Epsco, Inc. Providing the high gain and stability necessary for strain-gage and thermocouple applications, the Epsco model DA-101 Wide-band Differential Amplifier handles low-level signals, including pulse signals, without noise or hum pickup (see cut). An engineering data sheet fully describing this new amplifier is available.

For more facts request No. 25 on reply card

Common Stock Investment Filing Cabinets

Wassell Organizations, Inc. Cut your office force filing time in half, save up to 40% in space with Corres-File. Revolutionary filing equipment takes your file clerk out of the laboring class and saves you 50 cents of every dollar you now spend.

For more facts request No. 26 on reply card

Prefabricated Insulated Piping Systems

Ric-wil, Inc. In addition to quality piping systems of exceptionally high thermal efficiency, this firm prides itself in on-time delivery to meet piping construction schedules. Write for the new Ric-wil catalog.

For more facts request No. 27 on reply card

Visible Equipment

Wassell Organization, Inc. There are 16 good reasons why you should be cutting costs and speeding efficiency with Sig-Na-Lok.

For more facts request No. 28 on reply card

Visual Management Control

Graphic Systems. This New York firm invites men interested in efficient management to get things done with Boardmaster Visual control which gives a graphic picture of operations, spotlighted in color, saves time, money, and stops errors.

For more facts request No. 29 on reply card

Data Processing

Wassell Organization, Inc. A revolutionary data processing visible master card or tape unit is available from this firm, a leader in providing effective tools for effective management. Find out why you should be using it, too.

For more facts request No. 30 on reply card

Income Fund

The Keystone Company. This leading eastern investment firm offers Series K-1, a diversified investment in securities selected for current income.

For more facts request No. 31 on reply card

Visual Control Board

Wassell Organization, Inc. Productrol not only schedules but automatically checks with time, line, and color control, has low original and upkeep cost.

For more facts request No. 32 on reply card

Free Fir Plywood Purchasing Guide

Douglas Fir Plywood Assoc. A handy some wall hanger containing handy fir plywood grade-use-specification guide is free to anyone in your organization who specifies fir plywood. Also available is a specification portfolio giving detailed plywood descriptions, etc. Offer good is USA only.

For more facts request No. 33 on reply card

Order Desks

Wassell Organizations, Inc. These New Order Desks give finger tip control of all records. Cards and correspondence or orders can be mixed. All records instantly available.

For more facts request No. 34 on reply card

New Ideas:

Army Consolidates

Fiscal Operations

Reported by: Management Office, OCofS

Primary Program Affected: Command and Management

Background: Action was initiated by the Office, Chief of Staff and OCA in connection with the establishment of integrated accounting in D.A. to eliminate seventeen (17) autonomous fiscal stations in the Army Staff.

Before Improvement: Funds utilized in support of departmental operations were allocated to various operating agencies and were allotted to and administered by the seventeen (17) fiscal stations. This procedure prevented flexibility in the use of funds, and prevented maximum utilization of available funding programs. Maximum managerial control of funds was not possible by the top management officials of the Army Staff. The procedure was uneconomical due to the multiple offices involved and the manual methods used. In some cases backlogs existed.

After Improvement: All funds previously authorized to the 17 separate fiscal stations and utilized in department operations of the Army Staff are now allocated to the Office, Chief of Staff and, in turn, are allocated by that office to the Finance and Accounts Office, U.S.A. for fiscal administration. The operation is completely mechanized, using punch card equipment. The Office, Chief of Staff has greatly increased flexibility in the use of all Army Staff funds. Fiscal reporting has been integrated into a single system of financial reports.

Gains: Recordkeeping through machine methods has been simplified, separate reporting by seventeen (17) fiscal stations has been eliminated, and the number of separate allotment accounts has been reduced. The top management officials of the Army Staff are now able to exercise control over all funds utilized in the Army Staff. Substantial annual savings of approximately 35 man-years and supporting funds result from this improvement permitting the application of these resources to the accomplishment of other objectives. Backlogs are being reduced.

Nine Steps to Sound Management

By Charles Scott

■ Much criticism has been launched against government management, some justly, some unjustly, as it is very easy to find fault, criticize, "Monday quarterback" or "Arm chair" direct when one does not have to coach, manage the team, carry the ball, and/or meet all the opposition and problems. To assist present day managers meet this persistent challenge with more productive end results, here is a "capsule" type approach. It must be remembered that this approach is very condensed and much has been written on each SM factor. Yet, in a search for a solution, managers, not having the full management process in mind, may have ended up as fire fighters putting out brush fires in management areas rather than systematically correcting deficiencies.

Step 1.

(MA) Management Analysis

The management analysis function has not been developed and used to its full potential in most federal agencies. Some activity managers still think of this function as a statistical graphic portrayal service that may be used to *paint whatever graphic picture necessary to make the operation "look good"* and, unfortunately, much "sharp penciling" is being practiced to effect this goal. To effect full use of the (MA) function, the organization should be placed on staff level, free from hamstringing politics, with the chief reporting direct to the commander. Staffing of this activity may pose a problem as the chief and his "indians" should be the "cream of the crop" in management talent of the organization.

The management analysis function is one of the best management tools a commander or manager could possess. Some commanders and managers have been reluctant to use fully the potentials of this function due to the fact that they do not realize its true value to the organization and, in varying instances, are reluctant to have

results of the operation graphically portrayed.

In some instances, the MA activity has been staffed with mediocre, inexperienced, and/or underpaid personnel making its value comparable to the quality and experience of the personnel.

Proper use of the management analysis function will prove a tremendous step toward (SM) as proper utilization will point out to commanders and managers *where management failures exist, what is being done about them, when they will get well, and what is being done to prevent re-occurrence.*

Re-evaluate the use of your MA function and you will find it serves as the doctor of your management process through the implementation of its various analytical processes. What happens next depends on what YOU do about the doctor's recommendations.

Step 2.

Work Simplification (WS)

Step 1 (MA) will point out just what factor(s) of the SM formula are needed to correct existing deficiencies.

Work simplification is a service usually performed by the management engineering activity on an organizational project basis. However, work simplification requires total participation and support from the TOP to the BOTTOM of the *organizational structure* to be an effective part of the SM formula. Unless this total participation is achieved, time expended on this phase could be written off as a total loss or labeled as Operation "White-wash."

Step 3.

Management Improvement Program (MIP)

This program is designed to develop and maintain individual participation in management. This is the employees' program. Success of this type program depends on the commanders' and monitors' sincere participation and leadership. Failure to properly effect and maintain a sound management improvement program will contribute to operational failures in other parts of the management chain, as the (PD and PA) will be lacking due to lack of (RT) (QSP) and too much (P) on the minus side. *The most important contribution that can be made in management improvement is the development of individual participation in management.*

Step 4.

Work Measurement (WM)

In this area, we can get into real trouble. No one wants to have their production capabilities measured unless they really understand why it is being done. Many supervisors not familiar with the true value of (WM) fight the program down to the last ditch, yet, when the (WM) program is properly presented and supported, any supervisor, who is worth his salt, will recognize the true value of the (WM) program and wholeheartedly support it.

This function is also a responsibility of the management engineering service and is very closely related with WS and MIP. Work measurement is one of the basic tools of management as through products of (WM), it is easy to determine how much can be done in a specific length of time, with a definite amount of people at a defined cost, thereby making personnel and material requirements, programming, and budgeting a realistic pro-

The Key to the Story

$$\frac{MA + WS + MIP + WM + RWS + RM\&P + RTP + QSP + MA}{GHR + CS + RE + PA + PD \pm P} = SM$$

Operational

MA—Management Analysis
WS—Work Simplification
MIP—Management Improvement Program
WM—Work Measurement
RWS—Realistic Work Standard
RM&P—Realistic Methods & Procedures
RTP—Realistic Training Program
QSP—Qualified Supervisory Personnel

Human Element

GHR—Good Human Relations
CS—Common Sense
PA—Positive Attitude
PD—Positive Desire
±P—Plus or Minus Politics
SM—Sound Management

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Step 5.

Realistic Work Standard (RWS)

A realistic work standard is one of the final products of work measurement whereby efforts of management can be effectively evaluated. The next step is to test the developed standard to assure it is a realistic work standard. Definite care need be exercised in this evaluation, as the mere establishment of a work standard without periodic review and amendment could prove detrimental; therefore, as methods of operations are improved, more experience is gained, training programs take effect, a closer analysis is required of the developed, in use, work standard to insure that it is in line with progress in other related areas. The evaluation of a work standard is primarily the function of the management engineering service with close cooperation of the using activity. *A sincere desire must exist in the using activity to use work standards in its daily operations or the time and money spent in the development of the work standard is wasted and the formula of SM seriously impaired.*

Step 6.

Realistic Methods and Procedures (RM&P)

In utilization of steps 1 through 5, we have been in the process of establishing the technical foundation of the operation. In the development of realistic methods and procedures, the word picture of instruction and guidance is formulated. There are many methods of procedure preparation, each having its own merit. Yet, a good procedure should tell in *simple* words, *who, what, when, how, and where*. A readable, simple flow chart with simple easily understood examples will help using personnel immensely, and, above all, should be prepared in the language of the user. Procedures prepared in simple, common, correct, everyday language will promote more successful implementation and desirous end results.

Many procedures have failed due to improper implementation or installation by individuals not thoroughly familiar with what the writer was trying to get across and/or insufficient knowledge of the subject. This type of end result does not mean that certain type procedures cannot be installed by training specialist or qualified supervisory personnel. But definite caution should be exercised as to

the type of procedures that are given to personnel other than qualified procedure writers to implement.

Let's not be carried away in this area—let's remember, at operational level certain procedures are handed down from higher authority. In those cases where the procedure writer is called on, he should also be considered for the job of installation and follow-up. He is in a better position to answer questions that *will* come up on the operational aspects. **REMEMBER**—A good start can never be replaced. Proper planning, ground work, installation, and follow-up on procedures will prove the difference in success and failure in the procedure preparation and implementation area.

Step 7.

Realistic Training Program (RTP)

Much emphasis has, is, and will be placed on personnel training. As our progress continues, more skill is required to handle the accomplishment of complex programs to meet requirements of assigned missions. This creates a definite need for *very realistic, down to earth* training programs. It may be assumed that the educational level of the average federal employee has risen considerably in the past few years, yet careful planning is required to insure that our training programs are *effective*. Qualified instructors are essential, and every effort should be made to develop or obtain instructors who are *theoretically* and *operationally* familiar with their subjects or are flexible enough that they can adjust themselves to fit into the program with a minimum of training. A college degree is not always an indication of intelligence or a passport to being a good instructor. It is helpful, yet, a desire to train personnel, knowledge of the subject, and a will to get along with people must be prevalent.

Step 8.

Qualified Supervisory Personnel (QSP)

"Here, Management can hit the jackpot or the poor house." Unless management has qualified supervisory personnel to carry out the aforementioned factors of sound management, the entire management system will be a failure. Management requires team work; therefore, if supervisors fail to plan, specify what is to be done, and follow up, the answer is evident—management failure. Let's face it! Today, too often, operational failure is blamed on everything but the right thing, and, most generally, honest im-

partial management survey usually points to poor supervision or leadership. One may ask, "Just how do I obtain qualified supervisors?" To be sure, they do not drop out of thin air or grow on trees. They have to be developed, and in this area, the manager can either make or break himself. Some individuals are better fitted for supervision than others.

Many managers will agree that they can point their finger at too many cases where the unfit were promoted in hopes of getting them out of the way. This is the most tragic error that could be committed, both to the employee and the organization. Their inefficiency could, in one day, do enough harm that it would take months or years to repair. As a manager of a baseball or football team reassigns his players to get winning results so should a federal manager re-assign his personnel to effect sound management. Private industry does not tolerate, for long, supervisors who fail to produce—so why should it be permitted in government?

Recognition and very careful analysis of the end product should be continually made, as every organizational study the author has ever conducted indicated when management failures existed, qualified supervisory personnel *were* not in charge of the operation at all levels.

Step 9.

Management Analysis (MA)

After all the factors of the sound management process have been covered, management is in a position to make a progress analysis of its efforts. The execution of the progress or program analysis is a function of the management analysis activity, the end product being how good or bad management has been and in what areas corrective action is necessary. Management analysis personnel will conduct its analysis on a basis of what is wrong, why is it wrong, what is being done about it, when will it get well, and what is being done to prevent its recurrence.

This analysis is for the purpose of telling you where you are weak and how you can go about correcting the weak spots. Use this management analysis service wisely and you will have a sound management program on a continuing basis—pay no heed to the findings of your MA and you will find yourself on the defensive, defending personnel that, had you given an ounce of prevention at the appropriate time, would not need protection.

You may say, "It's easy for the

author to say all this, but if he were in the driver's seat, I wonder if he could do any better?" That is a good question. If all conditions were equal, situations similar, opposition the same, without benefit of this capsule guide light, perhaps not, but with knowledge of or a warning of the pitfalls to look out for, definitely, yes.

The Common Denominator

The common denominator of the management process will, through failure of proper application or use, be instrumental in management failure. Let's consider the capsule definition of each factor of the common denominator.

1. (GHR) Good Human Relations. This is a Gold Label item—one of the most important single factors of the sound management formula. Human relations—the art of getting along with people—how easy to fail if not properly used and how hard to succeed if properly used and the other factors of the sound management formula are not synchronized.
2. (CS) Common Sense
3. (RE) Realistic Evaluation
4. (PA) Positive Attitude
5. (PD) Positive Desire
6. (Plus or minus P) Politics

Politics Here to Stay

Today, whether one likes it or not, politics, in one form or the other, is here to stay. In management, politics can be a very useful or destructive tool. Therefore, it behooves each manager to develop means to use the positive value of politics. All successful politicians know that they must have support so, in turn for that support, they must give something and that could easily be support of a sound management program. No matter how much effort is made to prove that politics does not exist in federal management, individuals sponsoring this effort are only kidding themselves. In one form or another, it is there so it behooves managers to make it work for SM.

This article covers, in a very capsule form, the factors of the sound management formula. Let's make an evaluation of our operation, see if the deficiencies found can be corrected through the use of the sound management formula. Let's take a positive attitude and say we can and will do better, will use the tools of SM that are available. In so doing, we will be re-establishing public faith in the public service and eliminate any possible doubt or criticism of our management system.

New Ideas:

How Air Materiel Europe Saved \$69-Million

A million saved is a million earned. By this logic, supply personnel of the Air Materiel Force, European Area, earned \$69-million for the U.S. taxpayer during the first three months of the AMFEA Stock Reduction Program last year, by returning inactive stocks to other overseas and ZI depots having a requirement for these items. This program was designed to eliminate excess supplies in the European theater, largely resulting from changes in theater-based aircraft and in operational concepts.

Inspiration for the program came from a spot-check made in January 1956, when a team from the AMFEA Headquarters Directorate of Supply visited the giant base at Nouasseur, Morocco. Despite routine inspections of AMAE-level inventories—made by stock number regardless of the amounts and dollar-values involved—considerable excess stocks had piled up at the depots. This spot-check was made to test the application of "management by exception" to the problem of overstocking.

The team reviewed 139 items in five property classes selected at random, since at this stage the supply men were not seeking impressive savings as much as principles that could be applied to a larger-scale review. Even under these restrictions, the results were impressive. Stock control levels for the random items were reduced in dollar-value from \$3,753,000 to \$2,382,502. Items worth \$3-million were declared excess, and requisitions for approximately another \$1-million's worth were cancelled. All in all, a profitable trip.

Quick Success

Upon the basis of this quick success, a time-phased program was established, to begin on July 1, 1956.

Utilizing principles of management-by-exception, AMFEA Supply decided to concentrate its efforts on those classes of supplies which promised to pay off in significant savings. The first phase of the Stock Reduction Program was limited to 128 out of the 671 sub-classes stored in the AMFEA depots. These 128 sub-classes represented 91 per cent of AMFEA's total inventory at the time, \$600-million out of more than \$740-million. Thus it was the hope of AMFEA Supply to identify for ultimate disposal half of all the classes surveyed.

Program Set

This ambitious undertaking was described in an AMFEA directive which laid down the steps to be taken by the AMAs in the European Area. In brief, the program was arranged as follows: An average of 10 classes would be surveyed every month, beginning with those which contained the greatest dollar value. All classes under survey had a dollar-value of at least \$1-million; thus it was assured that survey costs would not be greater than the savings that resulted.

To insure that survey costs did not exceed the point of diminishing returns, AMFEA Supply officials directed that review be limited to items totaling approximately 80 per cent of the total dollar value of each class. This restriction was based upon the experience of the team to the Southern Air Materiel Area, that in the average class the effort needed to review the dollar values beyond 80 per cent would involve disproportionate numbers of supply items, sometimes double the number making up the first 80 per cent.

For items so included, depot-level supply personnel would then develop new stock control levels based on issue experience over the previous 180 days. Allowing for normal contingencies in the following 180 days, stock levels for the items under survey were established and excesses were identified.

In October, AMFEA Supply reported that the inventory reductions from the excess declarations of the first three months already totalled \$93-million.

These declared excesses were reported by each Air Materiel Area, Europe to the other AMAEs. Thus an AMAE which discovered deficits in any class could call upon an AMAE with a surplus, rather than go back to U.S. sources, with the costs and delays of packing, transport and processing added to the cost of the material, itself unnecessary.

Savings Impressive

Altogether, about \$139-million's worth of excess inventory was declared, up to and including January 1957, after which formal reporting on this program was no longer mandatory. Further savings are expected from continuance of the concept of this program and from the alertness it inspired among depot personnel.

ARMED FORCES MANAGEMENT



Book Reviews

by D. D. Corrigan

Authentic Problems and Cases

"CONTEMPORARY PUBLIC RELATIONS," by Harlan and Scott (Prentice-Hall, 204 pages, \$4.95).

A businessman and a professor collaborated on this book, combining practical experience and the classroom. They present their material in a unique and workable form. Over fifty actual case problems in public relations are presented, from the files of many leading business organizations. Each case is broken down into a clear and practical pattern. First the problem is stated, then background material is provided for the reader to try to solve this problem. The solution is not given, for the reason that each case could have several solutions, and the reader will be stimulated to work out these problems with greater skill if he does not have access to the results accomplished by professional workers.

In order for the reader to have a basic understanding of how to solve these problems, the first half of the book gives the principles behind public relations work. These first six chapters include all the basic information on problem analysis, research, publics, media, tools and techniques, policies, programs and personnel. Also, organization charts will be found for several large corporations to show how public relations fits into the structure of each organization.

Problem 1 is about the Basin Oil Company. The people in the community where this company is located want the plant moved, because of a serious explosion that occurred. Should the company take the case to court, give up and move out of town, or attempt to find another solution?

Problem 9 concerns the German Tourist Association. The problem is to alter the wrong impression that Berlin is not accessible to visitors, by getting this information to the press so the true picture can be presented, and to influence Western opinion favorably by arranging events to get the attention of the public and thus bring visitors in from the West.

Problem 18 is from Lockheed in Georgia, who face the situation of wanting to open a large bomber plant without disrupting the community, wishing to explain industrial ideas to an agricultural area, and attempting to integrate new people into the com-

munity, without causing antagonism.

Fifty-four cases are given, with the problem, the background, and the assignment. As can be seen from the above examples, these were not easy solutions and there are no quick or "pat" answers.

Public relations is virtually a newcomer to the field of communications, and is becoming more and more important as a profession. Every organization trying to achieve favorable reaction seeks good will, for public relations can concern every part of the organization's existence. A simple definition of public relations has been called making friends, and what group does not want to make friends.

"For it is the primary job of the public relations specialist to see that the policies and the objectives of his company's activities are not only in the best interest of the organization but in the public interest as well, so that they will result in favorable public opinion for the company and its product."

The Mind, The Unknown

"PSYCHICAL RESEARCH," by R. C. Johnson (Philosophical Library, 176 pages, \$3.75).

If mental telepathy is intended and develops into a reality, what an effect this could have on the practices of management in relation to personnel, business transactions, and actually all phases of enterprise. Whether or not this would be good or bad is certainly debatable, but it is a growing field and can be an interesting subject if approached scientifically.

R. C. Johnson, M.A., Ph.D., D.Sc., has not written this book for scholars and experts, but instead has written this book for the average person who would like a brief understanding of what psychical research is all about. Much work has been done on this subject in England, where experiences of prophecies and premonitions are more readily believed. The first meeting of the Society for Psychical Research was held in London in 1882 by a group of Cambridge scholars, who investigated much data and strange events in a scientific spirit. Experiments and research were started about twenty-five years ago at Duke University, North Carolina, with the founding of the Para-psychology Department.

Explanations are given of telepathy and clairvoyance, with closely related fields such as extra-sensory perception and para-normal cognition. Case histories are recorded with each chapter. Precognition and retrocognition concern observations of the past or future. Psychometry is object reading, and psycho-kinesis deals with attempts to control dice or card by the mental attitude adopted.

While the author gives only a brief summary of each facet of psychical research, many references are given to other books for further reading on any specific branch of this field. While many may doubt certain aspects of psychical research in general, the author claims that para-psychology can be verified. This development is the science of the application of experimental methods and statistics to the field of psychical research, or the "facts" that have been collected. "Psychical Research," presents a broad coverage of the field, with implications as to the importance of this subject in the future.

Smallest Engine At Solar



Solar Aircraft Company is designing and producing the smallest gas turbine aircraft engine ever built—to power a one-man helicopter. Only 20 inches high, with maximum diameter of 15½ inches, and weighing only 50 pounds, the tiny turbo-shaft engine will produce 55 shaft horsepower plus 12 pounds of jet thrust on a 100F day.

Herbert Kunzel, Solar president, said the company is producing the new turbo-shaft power plant under contract funded jointly by the Navy Bureau of Aeronautics and the U.S. Army. Known as the Solar Mercury, the engine's military designation is the YT-62.

● Naval Air Station, Corpus Christi, Texas saved an estimated \$27,000 by reclassifying as repairable 2,000 aircraft tires formerly designated as scrap.

Title and Location	Grade	Remarks
McClellan AFB, Calif.		
Supervisory Rocket Engine Inspector	GS-11	
Rocket Engine Inspector	GS-9	
Mathematician	GS-12	
Electronic Engineer (Radio)	GS-11	2 vac.
Sanitary Engineer	GS-11	
Electrical Engineer	GS-9	2 vac.
Industrial Engineer	GS-9	
Mechanical Engineer	GS-9	2 vac.
2nd Coast Guard District St. Louis, Missouri		
Electronics Engineer (Radio)	GS-9	
3rd Coast Guard District New York, New York		
Civil Engineer	GS-11	2 vac.
5th Coast Guard District Norfolk, Virginia		
Civil Engineer	GS-11	
Electronics Engineer (Radio)	GS-9	
9th Coast Guard District Cleveland, Ohio		
Architect (General)	GS-11	
Marine Engineer	GS-11	
Civil Engineer	GS-9	2 vac.
14th Coast Guard District Honolulu, T. H.		
Civil Engineer	GS-9	2 vac.
Washington Radio Station Alexandria, Virginia		
Electronics Engineer (Radio)	GS-9	
Maintenance Engineer	GS-9	
U.S. Coast Guard Headquarters Washington, D. C.		
Mechanical Engineer	GS-12	
Electrical Engineer	GS-12	
Aircraft Design Engineer	GS-12	
Naval Architect (Air Conditioning Systems)	GS-11	
U.S. Coast Guard Headquarters Washington, D. C.		
Electronic Engineer (Radio)	GS-11	
Electrical Engineer (Marine)	GS-11	
Electrical Engineer	GS-11	2 vac.
Structural Engineer	GS-11	
Structural Engineer	GS-9	
Naval Architect	GS-9	2 vac.
McConnell AFB, Kans.		
General Engineer	GS-11	
Construction Engineer (Airfields)	GS-11	
Mitchel AFB, N. Y.		
Supervisory Supply Requirements Officer	GS-11	
Psychologist (Pers. Mgt. Eval.)	GS-9	3 vac.
Civil Engineer	GS-9	
Construction Engineer (General)	GS-9	
Architectural Engineer	GS-9	
Mountain Home AFB, Idaho		
Safety Engineer	GS-9	
Turner AFB, Ga.		
Mechanical Engineer	GS-9	
Supervisory General Engineer	GS-9	
A/C Component Manufacturer & Repairer General Foreman	WF-12	\$2.92 ph
Vance AFB, Oklahoma		
Training Instructor (Weather Meteorology)	GS-9	
Vincent AFB, Ariz.		
Civil Engineer	GS-9	
Webb AFB, Texas		
Construction Engineer (Building)	GS-11	
General Engineer	GS-11	
Management Analyst	GS-9	
Westover AFB, Mass.		
Electrical Engineer	GS-12	
Mechanical Engineer	GS-12	3 vac.
Civil Engineer	GS-11	

Title and Location Grade Remarks

Wilkins AFS, Ohio		
Electrical Engineer	GS-9	
Materials Engineer (Packaging)	GS-9	
Preservation-Packaging Specialist	GS-9	2 vac.
Wright Air Development Center, Ohio		
Photographic Engineer	GS-11	
Wright-Patterson AFB, Ohio		
Actuary (Property)	GS-12	2 vac.
General Engineer (Aircraft)	GS-12	3 vac.
General Engineer (Armament)	GS-12	2 vac.
Industrial Engineer	GS-12	
Mechanical Engineer (Air Cond & Refrig)	GS-12	
Supervisory Industrial Engineer	GS-12	
Cost Accountant	GS-11	
Electrical Engineer	GS-11	
Mechanical Engineer	GS-11	
Medical Officer (Gen Med & Surg)	GS-11	
Supervisory Accounting Officer	GS-11	
Supervisory Mechanical Engineer	GS-11	
Accountant	GS-9	
Mechanical Engineer	GS-9	
Scenario Writer (Motion Picture)	GS-9	
Supervisory Accountant	GS-9	
Systems Accountant	GS-9	
Petroleum Inspector	GS-8	
USAF Academy, Colo.		
General Transportation Officer	GS-12	
Laughlin AFB, Texas		
Architectural Engineer	GS-11	
Electrical Engineer	GS-11	
Air Force Overseas Vacancies		
Shorthand Reporter, Korea	GS-8	
Shorthand Reporters, Japan & England	GS-7	
Medical Officer (Preventive Medicine) Alaska	GS-13	
Supervisory Accountant, Alaska	GS-11	
Accountant, Iceland	GS-11	
Accountant, Azores	GS-9	
Supv. Accountants, England	GS-9, GS-10	
Supv. Budget & Accounting Officer, England	GS-9	
Equipment Specialist (Electronics), Newfoundland	GS-11	
Architectural Engineer, Newfoundland	GS-11	
Civil Engineers, Newfoundland	GS-11	
Sanitary Engineer, Alaska	GS-12	
Electronic Engineer (Wire), Alaska	GS-12	
Mechanical Engineers, Germany, Japan, Alaska, Tripoli	GS-13, GS-12, GS-11	
Engineer (General), Philippines	GS-12	
Electrical Engineers, Newfoundland, Canal Zone, Guam, France	GS-11, GS-10, GS-9	

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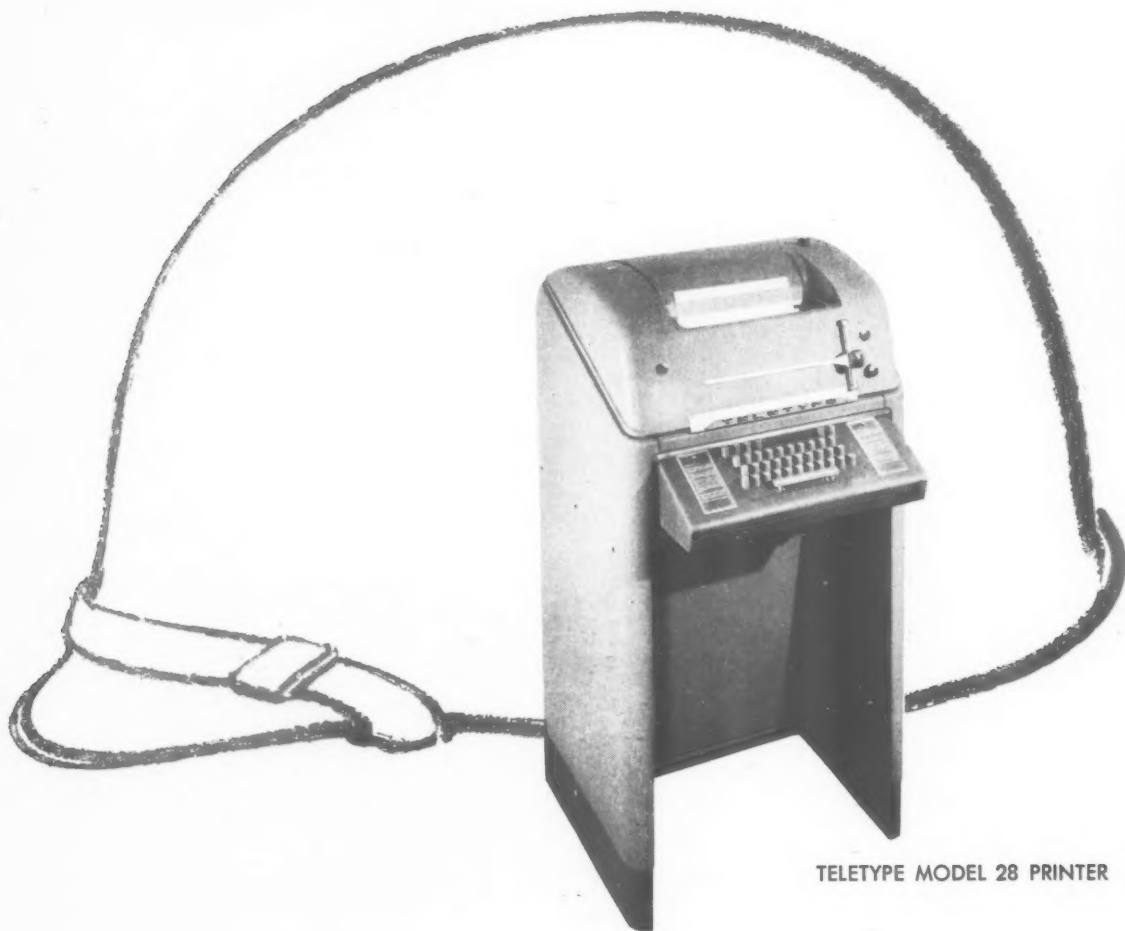
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NATIONAL AIRLINES
NORTH CENTRAL AIRLINES
NORTHEAST AIRLINES

NORTHWEST ORIENT AIRLINES
OZARK AIR LINES
PIEDMONT AIRLINES
SOUTHERN AIRWAYS
SOUTHWEST AIRWAYS

TRANS-TEXAS AIRWAYS
TRANS WORLD AIRLINES
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WESTERN AIR LINES

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Keeping military men and machines in close touch with each other via reliable printed communications has been Teletype's assignment in and out of war. The Model 28 Printer, for example, was designed with plenty of "reserve" for the extreme conditions encountered in military service. It will work well in harsh, unpredictable climates . . . take the shock of transportation, gunfire, shipboard vibration.

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